REPORT
OF THE
DEPARTMENT OF MINES
FOR THE YEAR
WESTERN · 1916. · AUSTRALIA

PRESENTED · TO · BOTH · HOUSES · OF · PARLIAMENT
BY · HIS · EXCELLENCY'S · COMMAND ·

The Hon: R.T. Robinson K.C.M.L.A.
Minister for Mines.
1916

MAP OF WESTERN AUSTRALIA

Showing the Goldfields and other Mining Districts
also the distribution of useful Minerals

Scale of English statute miles.

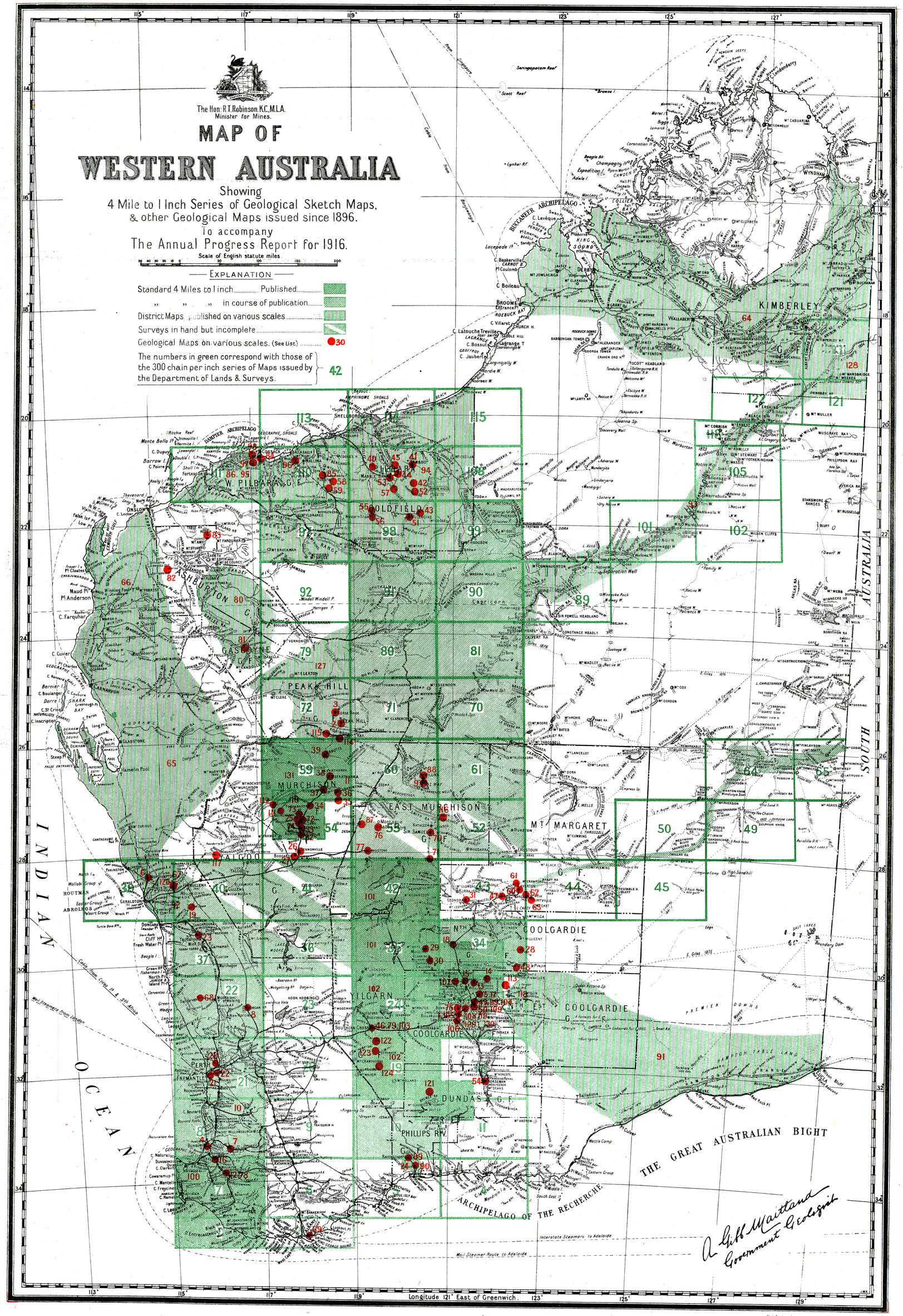
REFERENCE

Towns ... shown thus	◉ EUCLA
Railways ... „ „	
Rabbit Proof Fences ... „ „	
Goldfields ... „ „	
Telegraph Lines & Stations ... „ „	
Agricultural Areas ... „ „	
Stock Routes ... „ „	
Heights in feet ... „ „	(1255)
Steamer Routes ... „ „	

REFERENCE TO MINERAL SIGNS.

GOLD (other than Goldfields)	Au	LEAD	Pb
DIAMONDS	CD	TIN	Sn
COPPER	Cu	ANTIMONY	Sb
IRON	Fe	ASBESTOS	Ab
MICA	M	GUANO AND ROCK PHOSPHATE	
COAL	CC	GRAPHITE	CG
SILVER	Ag	COBALT	Co
ALUMINIUM	Al	BISMUTH	Bi
MANGANESE	Mn	DIATOM-EARTH	Si
OTHER GEMSTONES	Gm	TANTALUM	Ta
ZINC	Z	TUNGSTEN	W
SALT	Na	NICKEL & COBALT	Ni Co
MOLYBDENUM	Mo		

H.J. Pether, Government Lithographer, Perth W.A.
1916.


The Hon: R. T. Robinson. K.C., M.L.A.
Minister for Mines.

MAP OF WESTERN AUSTRALIA

Showing
4 Mile to 1 Inch Series of Geological Sketch Maps,
& other Geological Maps issued since 1896.
To accompany
The Annual Progress Report for 1916.

Scale of English statute miles

EXPLANATION

Standard 4 Miles to 1 inch........ Published........	▩
,, ,, ,, in course of publication........	▨
District Maps published on various scales........	▥
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A. Gibb Maitland
Government Geologist

H. J. Pether, Government Lithographer, Perth, W.A.

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3.	Horseshoe	,,	III.				
4.	Bunbury	,,	IV.				
5.	Kanowna	,,	VI.	47	I.		
6.	Northampton	1897	I.	9			
7.	Collie Coal Field	1898	I.				
8.	Wongan Hills	,,	IV.				
9.	Lake Way	,,	VI.				
12.	Greenbushes	1899	I.				
13.	Mulgarrie	,,	II.				
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27.	Mt. Magnet and Boogardie	..		8	II.	59	IX.
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1917.

WESTERN AUSTRALIA.

REPORT

OF THE

DEPARTMENT OF MINES

FOR THE YEAR

1916.

Presented to both Houses of Parliament by His Excellency's Command.

PERTH:
BY AUTHORITY: FRED. WM. SIMPSON, GOVERNMENT PRINTER.

1917.

ANNUAL REPORT OF THE DEPARTMENT OF MINES, WESTERN AUSTRALIA, 1916.

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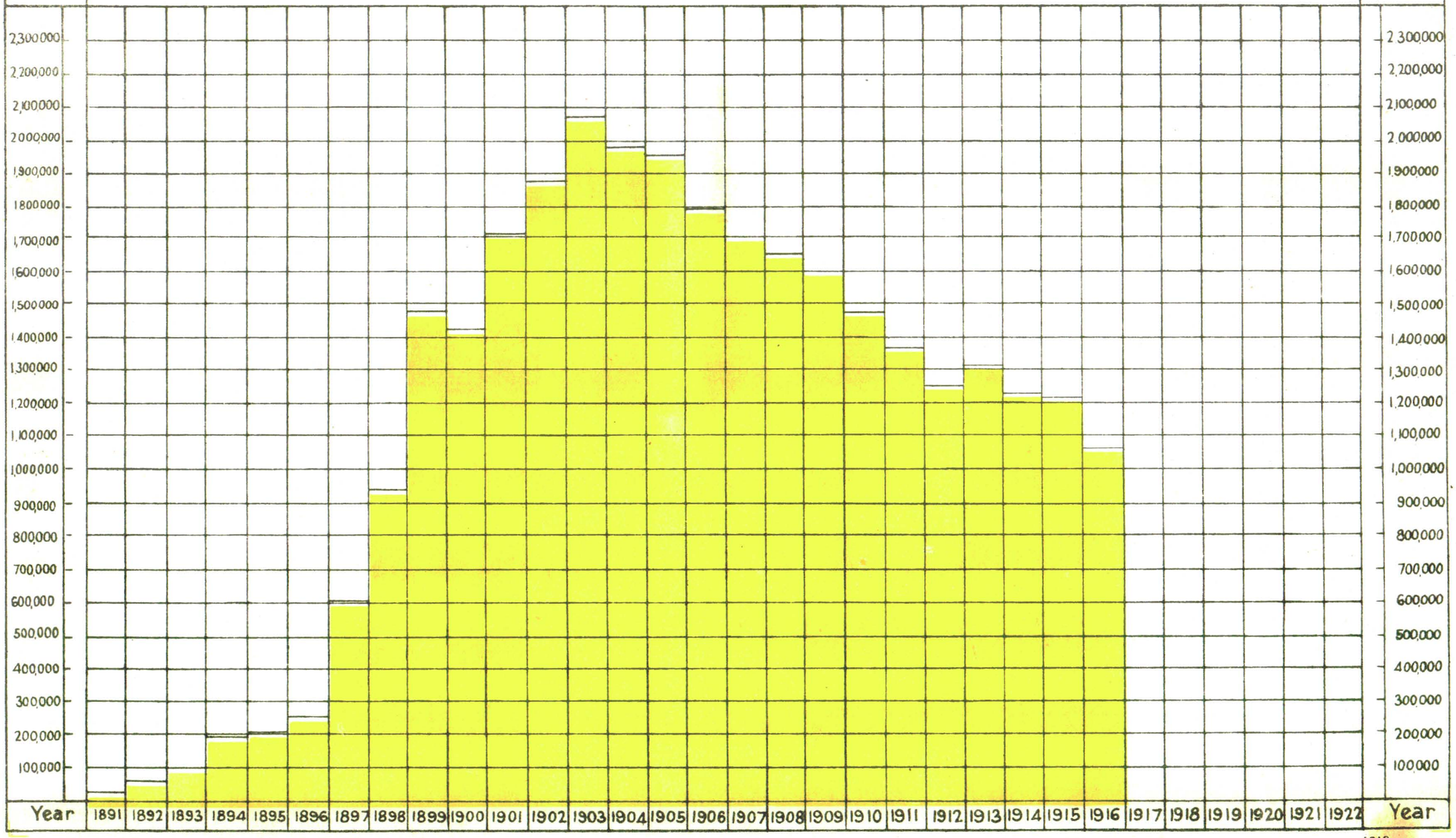


1916

STATE OF WESTERN AUSTRALIA.

Report of the Department of Mines for the State of Western Australia, for the Year 1916.

To the Hon. the Minister for Mines.

SIR,

I have the honour to submit the Annual Report of the Department for the year 1916, with summaries of reports from the Wardens and other officers, together with various comparative tables furnishing statistics relating to the Mining industry of the State.

Reports from the officers controlling the various Sub-Departments are also submitted.

I have, etc.,

H. S. KING,

Department of Mines, Perth, 31st March, 1917. Under Secretary for Mines.

DIVISION I.

Summary by the Under Secretary for Mines.

PART I.—GENERAL REMARKS.

The value of the Mineral output of the State for the year 1916 was £4,893,417, being £584,732 less than that for the previous year.

Copper Ore exported showed a falling-off of 87 tons, and Copper Ingots of 489 tons. Tin and Coal showed increases, but Silver a decrease.

The value of the Gold yield was £4,508,532, being 92.13 per cent. of the total output.

The value of the Coal output was £147,823, of Copper £64,833, Lead £12,033, and Tin £49,101.

The dividends paid by mining companies amounted to £632,883, and in the preceding year £792,317; a decrease of £159,434.

The total dividends paid to the end of 1916 were £26,127,269.

To the same date the total mineral production was £135,276,825, and the total gold production £129,766,686.

GOLD.

The gold yield shows a decline, being 148,714 fine ounces less than for 1915, which was 22,865 fine ounces less than that for 1914.

The average value per ton of ore treated in the State as a whole has risen from 38.41 shillings in 1915 to 40.34 shillings in 1916, and in the East Coolgardie Goldfield, which, again, as for years past, produced over 50 per cent. of the State's yield, from 35.40 shillings to 37.42 shillings.

Comparing the tonnages of ore treated in 1915 and 1916 there is a decrease of 440,181 tons in the latter year, during which 2,172,774 tons were treated.

There were decreases in all fields excepting Mount Margaret and West Pilbara, where the increases were 10,391 and 147 tons respectively.

Working costs show an increase, the average cost per ton of 2,000 lbs. being as published by the Chamber of Mines:—In 1908, 19s. 3d.; in 1909, 19s. 11.5d.; in 1910, 20s. 1d.; in 1911, 20s.; in 1912, 19s. 3d.; in 1913, 19s. 6.6d.; in 1914, 20s. 6d.; in 1915, 19s. 9d.; and in 1916, 22s. 3d.

There were decreases in the gold outputs of all the fields excepting Kimberley and Phillips River, which each showed a slight improvement on the preceding year.

The acreage held under mining lease for all minerals is 50,511, being a decrease of 1,993 acres when compared with 1915. The area leased for gold mining is less by 2,816 acres, but for minerals greater by 823 acres. The area held under prospecting areas is 17,520 acres, including 9,516 for Coal and Oil. This is an increase on the area held in 1915 of 303 acres, the improvement being in the acreage held for Coal and Oil.

The number of men engaged in all classes of mining is 10,903, a decrease of 1,350 on the figures for 1915, which is undoubtedly attributable to the same cause as last year, viz., the enlisting of men for active service abroad.

The number of men engaged in mining for minerals other than gold increased by 149, the increases being in Tin and Lead mining; but Coal mining showed a decrease.

In gold mining there was a falling-off of 1,499.

The average value of gold produced per man employed on gold mines has decreased from £457.06 in 1915 to £453.78 in 1916. The average tonnage raised per man was 227.20 tons, and in the preceding year 237.95 tons.

In the East Murchison Field there was a falling-off, attributable to a lessened output from various centres in the Black Range District, which district, it is regrettable to note, has been mostly on the down grade. In the Lawlers District prospecting has been active, and there was an increase. This was also the case in the Wiluna District, the facilities afforded by the new State Battery being evidently of considerable assistance.

The Murchison Field had a decrease, mainly caused by lessened outputs from two mines in the Meekatharra District. In this district most of the big mines have been working steadily.

In the Mount Magnet District there was a small increase.

In the Cue District there was a slight falling-off, but the Light of Asia Mine continued to be a consistent producer.

In the Day Dawn District a temporary stoppage of crushing operations at the Great Fingall Mine caused a decrease.

The Mount Margaret Field had a decrease.

In the Mount Margaret District a small decrease is attributable to one mine in the previous year having had a large quantity of specimen stone from which a good deal of gold was dollied, but this year the same amount was not forthcoming. The Lancefield Mine has been a steady producer. In the Mount Morgans District there was an increase. At one or two centres there was a revival in prospecting with encouraging results.

In the Mount Malcolm District there was a decrease.

The Sons of Gwalia Mine continues to be the chief producer, and a good deal of development work has been carried out on this and other mines in the district.

The Coolgardie Field had a decrease.

In the various centres mining has been very quiet. In the Kunanalling District two good mines are being steadily developed.

The North Coolgardie Field had a decrease.

In the Menzies District the Sand Queen Mine at Comet Vale and the Menzies Consolidated at Woolgar continue to be the principal producers. At Goongarrie there has been a good deal of activity, and the New Boddington Mine is regarded as a very promising one.

At Mt. Ida mining was stagnant.

In the Ularring District there was an increase, and the Riverina centre appears to be on the upgrade.

In the Niagara and Yerilla Districts there were no developments of note.

The North-East Coolgardie Goldfield had a decrease, and throughout this field matters have been exceedingly quiet.

The Broad Arrow Goldfield had a slight decrease.

No new finds were reported but a good deal of attention was devoted to old abandoned leases, in some instances with gratifying results.

At Waverley there was a noticeable improvement towards the close of the year.

At Black Flag mining is quiet but Bardoc continues to be actively prospected. At Ora Banda, the Associated Northern Mine is still operating, but shortage of water is a retarding factor.

In the East Coolgardie Goldfield the number of men engaged in mining was 4,081, and in 1915, 4,598; a decrease of 517.

This goldfield gave employment to over 41 per cent. of the number of men employed in gold mining, and the reported production during the year was 579,344 fine ounces, about 56 per cent. of the total reported yield. The tonnage treated was 1,315,253 tons, being less than in 1915 by 288,597 tons. The average grade of the ore per ton improved from 35.40 shillings in 1915 to 37.42 shillings in 1916. The decrease in output is attributable to a strike at the commencement of the year and scarcity of competent miners.

In the Yilgarn Field there was a small decrease. At most of the centres prospecting was active and the results generally encouraging. At Westonia the mines have been developing steadily and the output maintained.

The Dundas Field had a decrease. There was little change and no developments of note.

The Phillips River Field had an increase and mining is on the up grade. The improvement promises to be maintained.

In the Northern Goldfields, Kimberley, Pilbara, West Pilbara, Ashburton and Gascoyne, there was practically no change.

In Pilbara there was an improvement in the Nullagine District, but at all centres there is a great shortage of miners and an improvement in this cannot be expected until after the war.

TIN.

The quantity of tin exported was 463 tons, valued at £49,101, being greater than in 1915 by 34 tons, and in value by £7,710.

The Greenbushes Tinfield produced 281.74 tons, valued at £27,319; an increase on the preceding year of 34.41 tons, and in value of £5,888; the Pilbara Field, 153.17 tons, valued at £15,939; an increase on the preceding year of 74.52 tons, and in value of £8,306.

None was produced on any of the other fields.

TANTALITE.

47 tons of this mineral, valued at £9,375, were exported, but none in the preceding year.

This was raised at Wodgina, in the Pilbara Field, some years ago, but owing to the absence of any market was held until a favourable opportunity arose.

COPPER.

The value of the Copper exported was £64,833, being £26,336 less than in 1915. The quantity raised in the West Pilbara Field was 948.87 tons, valued at £16,116; an increase on the preceding year in tonnage of 634.12 tons, and in value of £12,570. Work was continued on the Whim Well Copper Mine, and in the coming year the operations are likely to be more extensive.

In the Phillips River Field, the production was 5,428.08 tons, valued at £48,618; an increase in tonnage of 1,747.05 tons, and in value of £24,525.

The various mines in this field have been vigorously developed, consequent on the great assistance to leaseholders rendered by the State Smelters.

In the Peak Hill Field 250.93 tons, valued at £8,268, were produced; an increase on the preceding year in tonnage of 13.35 tons, and in value of £650.

The mines at Ilgarere are looking very promising, but a great drawback is the cost of transport, consequent on their remote situation.

Other fields producing were Ashburton, 2.61 tons, valued at £27, and East Murchison, 63.42 tons, valued at £1,311.

The average number of men engaged in copper mining was 113, and in 1915, 144.

COAL.

The output for the year was 301,526 tons, being 14,860 tons more than in 1915.

With the exception of the Scottish Collieries Mine, where operations were suspended, the mines were actively worked. The Collie Co-operative carried out a series of bores to further prove the property, and the results were satisfactory.

The number of men employed, 458, is less by 40 than in 1915, and the output per man was in 1915, 575 tons, and in 1916, 658 tons.

GRAPHITE.

On the deposit of this mineral at Donnelly River there was not much work done, but at Kendenup in the Plantagenet District, where there is a deposit of good grade ore, a fair amount of development was accomplished.

OTHER MINERALS.

The quantity of Silver obtained as a by-product and exported was 173,012 ounces, valued at £22,258, and in the preceding year 222,159 ounces, valued at £24,295; a decrease of 49,147 ounces, and in value of £2,037. Lead and Silver-Lead to the extent of 428 tons, valued at £12,033, were exported, and in the preceding year 2,883 tons, valued at £39,032; also 3,523 tons of Pig Lead, valued at £74,930, and in the preceding year 13 tons, valued at £302.

Pyritic Ore amounting to 4,409 tons, valued at £2,263, was reported, and in the preceding year

6,558 tons, valued at £2,368. Magnesite to the extent of 12 tons, valued at £47, was exported, and in the preceding year 688 tons, valued at £1,196.

Antimony amounting to 27 tons, valued at £580, was exported, also 3 tons of Scheelite, valued at £438.

Small quantities of Bismuth, Mica, and Wolfram were exported.

No Asbestos was reported or exported.

MINING GENERALLY.

With the single exception of South Australia, the whole of the Australian States, including the Northern Territory and Papua, had decreased gold outputs.

New Zealand also had a decrease.

The Western Australian production was 54.23 per cent. of the total for Australasia, and in the previous year 51.29 per cent.

The falling off in production from nearly all of the fields in this State was, in view of the large number of men who have enlisted, quite expected, and no great improvement can be hoped for until after the end of the war.

Most centres report that a dearth of competent labour exists. Notwithstanding this, the position has been well maintained, and in centres such as Goongarrie and Riverina, also in the Northampton and Phillips River Fields, mining has been on the up-grade.

The assistance to bona-fide prospectors by loans of equipment and transport facilities has been continued, and the whole of the Department's outfit is in constant use.

The area held under prospecting areas for Gold and Minerals, viz., 8,004 acres, although less than in the previous year by 1,419 acres, is evidence of sustained interest in prospecting.

The assistance rendered under the provisions of the Mining Development Act, details of which are given in the Report of the State Mining Engineer, published as Division II. of this Report, and which aims at assisting in the development of struggling mines, principally by equipping them with machinery, indicates that the Government does its utmost to encourage and push ahead the industry. Assistance is also rendered by doing diamond drilling wherever there are reasonable prospects of success attending the efforts.

Early in the New Year the Hon. the Minister proposes to convene a Conference of representative persons interested in mining, with a view to inviting and discussing suggestions relative to the encouragement and development of the industry. The Conference will in all probability be held in Kalgoorlie.

PART II.—MINERALS RAISED.

TABLE 1.

Quantity and Value of all the Minerals produced during 1915 and 1916.

Description of Minerals.	1915.		1916.		Increase or Decrease for Year compared with 1915.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		£				£
1. Antimony (exported), statute tons ..	..	..	27	580	+ 27	+ 580
2. Bismuth (exported), statute tons ..	1	37	¼	133	— ¾	+ 96
3. Coal (raised), statute tons	286,666	137,859	301,526	147,823	+ 14,860	+ 9,964
4. Copper { Ore (exported), statute tons ..	737	13,768	650	14,971	— 87	+ 1,203
4. Copper { Ingot, Matte, etc. (exported), statute tons	946	77,401	457	49,862	— 489	— 27,539
5. Gold (exported and minted), fine ounces ..	1,210,112	5,140,228	1,061,398	4,508,532	— 148,714	— 631,696
6. Lead and silver lead (exported), statute tons	2,883	39,032	428	12,033	— 2,455	— 26,999
7. Magnesite (exported), statute tons ..	688	1,196	12	47	— 676	— 1,149
8. Mica (exported), statute tons	..	26	..	10	..	— 16
9. Pig Lead (exported), statute tons ..	13	302	3,523	74,930	+ 3,510	+ 74,628
10. Pyritic Ore (reported), statute tons ..	6,558	2,368	4,409	2,263	— 2,149	— 105
11. Scheelite (exported), statute tons ..	..	..	3	438	+ 3	+ 438
12. Silver (exported), fine ounces	222,159	24,295	173,012	22,258	— 49,147	— 2,037
13. Tantalite (exported), statute tons ..	..	..	47	9,375	+ 47	+ 9,375
14. Tin (exported), statute tons	423	41,391	463	49,101	+ 24	+ 7,710
15. Wolfram (exported), statute tons	¼	25	1	128	+ ¾	+ 103
16. Zinc, Spelter, etc. (exported), statute tons	7	143	14	630	+ 7	+ 487
Unenumerated (exported), statute tons ..	..	78	..	303	..	+ 225
Total Values .. .. .. £	..	5,478,149	..	4,893,417	..	— 584,732

TABLE 2.

Value and Percentage of Mineral Exports in relation to the value of Total Exports from Western Australia.

Year.	Total Exports.	Mineral Exports (exclusive of Coal).	Percentage.
	£	£	
1901	8,515,623	6,920,118	81·27
1902	9,051,358	7,530,319	83·20
1903	10,324,732	8,727,060	84·53
1904	10,271,489	8,625,676	83·98
1905	9,871,019	7,731,954	78·33
1906	9,832,679	7,570,305	76·99
1907	9,904,860	7,544,992	76·17
1908	9,518,020	7,151,317	75·13
1909	8,860,494	5,906,673	66·66
1910	8,299,781	4,795,654	57·78
1911	10,606,863	7,171,638	67·61
1912	8,941,008	5,462,499	61·09
1913	9,128,607	4,608,188	50·48
1914	8,406,182	3,970,182	47·23
1915	6,291,934	2,969,502	47·19
*1916	...	...	...
15 Years Total ...	137,824,649	96,686,077	70·15

* Particulars for 1916 not at present available.

COMPARATIVE STATISTICAL DIAGRAMS

RELATING TO

OUTPUT AND VALUE OF GOLD AND OTHER MINERALS, LANDS LEASED FOR GOLD MINING

IN WESTERN AUSTRALIA

AND THE GOLD PRODUCTION OF AUSTRALASIA FOR THE YEAR 1916.

Fig 1. Output of Gold from various Goldfields as reported to Mines Dept.

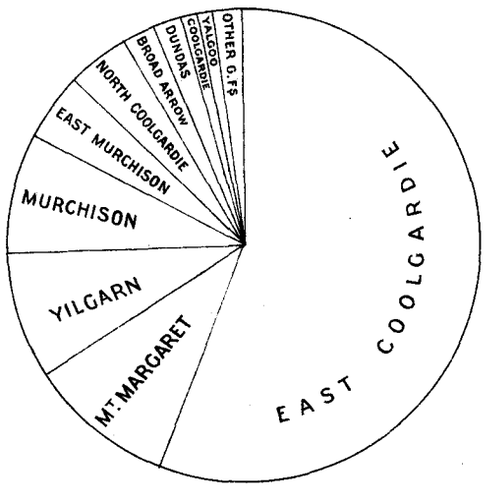


Fig 2. Gold produced from various Goldfields as given by the Export and Mint Returns.

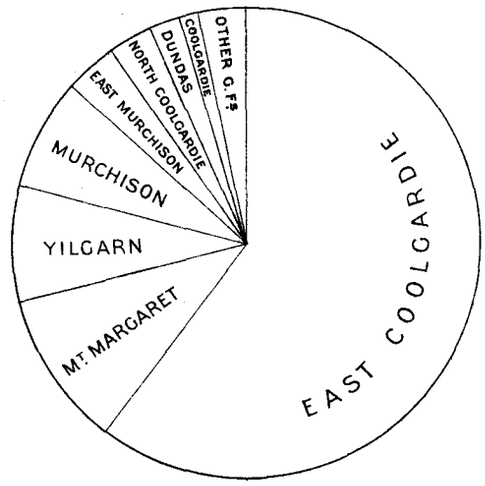


Fig 3. Value of Gold and other Minerals.

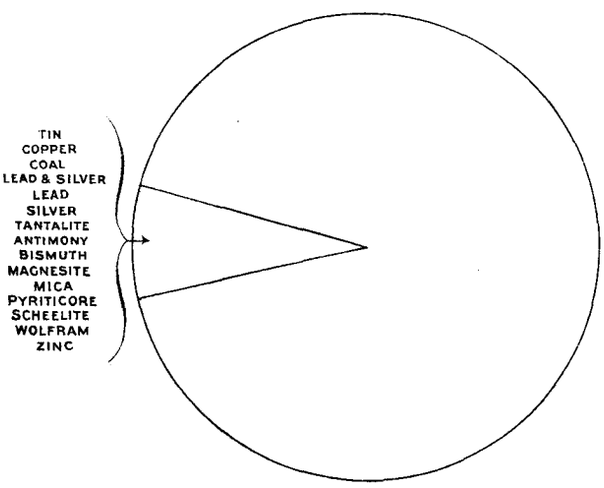


Fig 4. Value of Minerals other than Gold.

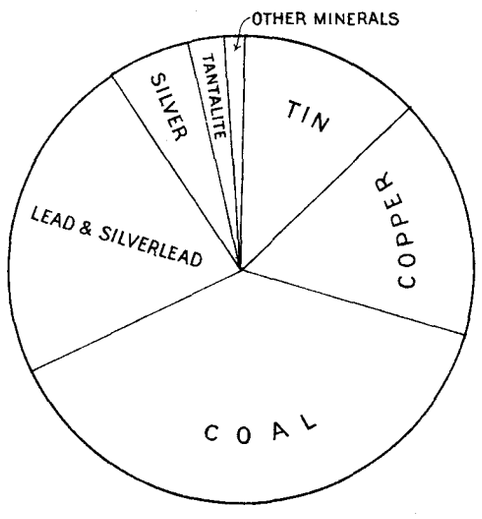


Fig 5. Areas of Land leased for Goldmining on various Goldfields.

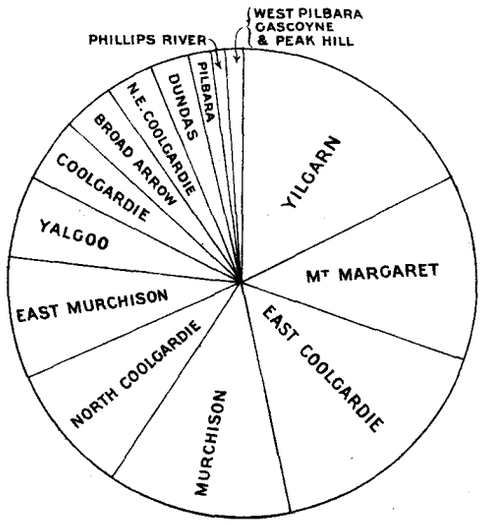
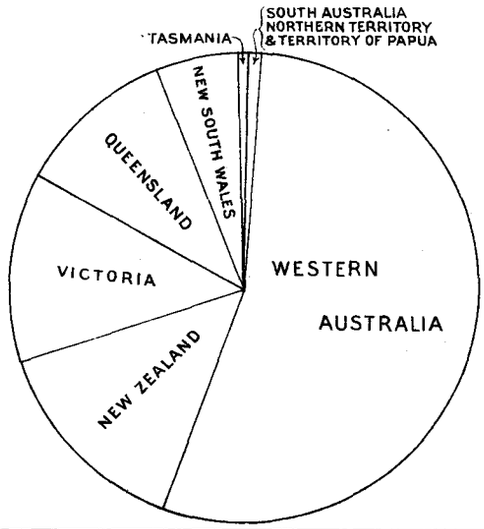
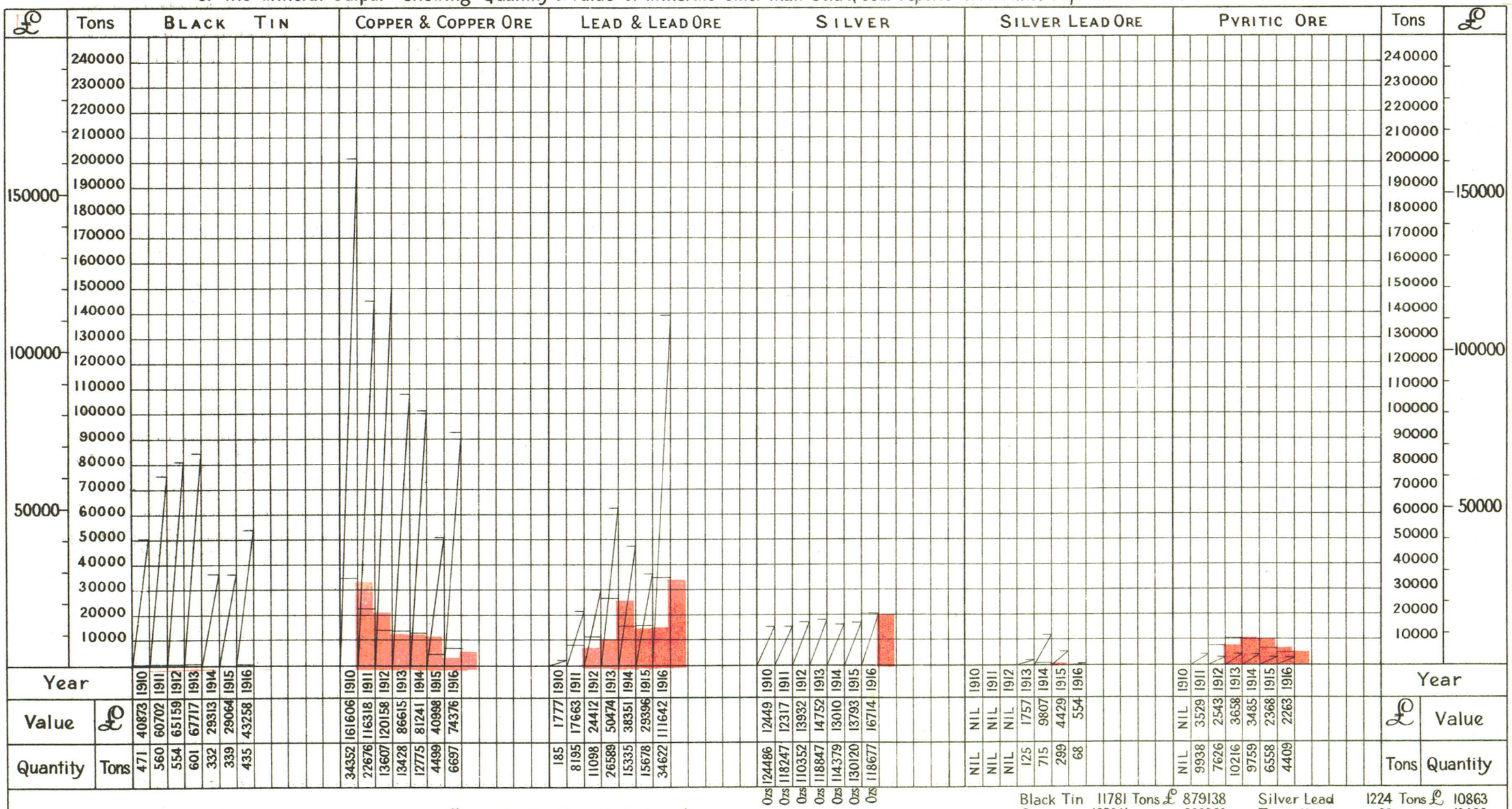


Fig 6. Output of Gold in the States of Australia and the Dominion of New Zealand.



DIAGRAM

of the Mineral Output - showing Quantity & Value of Minerals other than Gold & Coal reported to the Mines Dept from the Year 1910 onwards



NOTE. The Pink denotes Quantities produced and Diagonal lines Values thereof

Various other Minerals not shewn above viz: Antimony 20·78 Tons Value £491; Magnesite 97·50 " " £ 97; Wolfram Ore 20·00 " " £ 117 were also reported in the year 1916

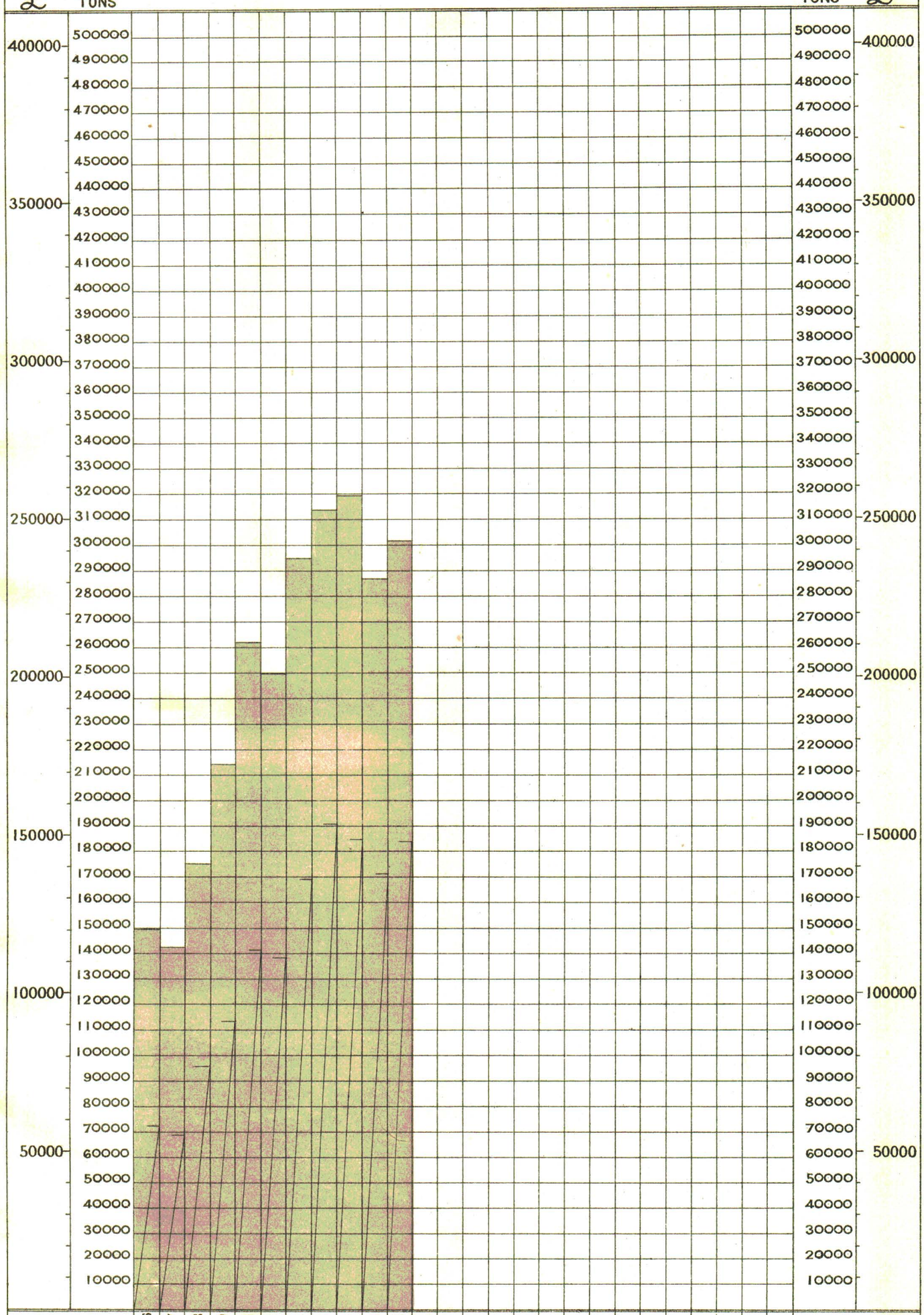
Previous to 1910 the Quantity & Value of various Minerals reported amounted to .....

Black Tin	11781 Tons	£ 879138	Silver Lead	1224 Tons	£ 10863
Copper	105041 "	688360	Tantalite	89 "	13486
Ironstone	57820 "	36695	Limestone	93706 "	18290
Lead	418 "	2034	Silver	951624 ozs	114386
Asbestos	43 "	1754	Total		£ 1765006

1916.

DIAGRAM

Of the Coal Output – Shewing Quantity & Value as reported to Mines Dept from 1906 onwards



Year		1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
Value	£	57998	55158	75694	90965	113699	111154	135857	153614	148684	137589	147823
Quantity	Tons	149765	142373	175248	214302	262166	249890	295079	313818	319210	286666	301526

Year
£ Value
Tons Quantity

1916

TABLE 3.

Showing for every Goldfield the amount of Gold reported to the Mines Department as required by the Regulations; also the percentage for the several Goldfields of the total reported and the average value of the Gold per ton of ore treated.

Goldfield.	Reported Yield.					
	1915.	1916.	Percentage for each Goldfield.		Average Value of Gold per ton of Ore treated.	
			1915.	1916.	1915.	1916.
	fine ozs.	fine ozs.			shillings.	shillings.
1. Kimberley	144	**162**	·01	**·02**	..	..
2. Pilbara	8,542	**5,882**	·71	**·57**	121·75	**149·79**
3. West Pilbara	1,507	**609**	·13	**·06**	192·64	**75·09**
4. Ashburton	..	..	..	..	..	..
5. Gascoyne	81	**14**	·01	..	85·65	**33·04**
6. Peak Hill	2,823	**2,389**	·24	**·23**	93·51	**112·57**
7. East Murchison	58,082	**46,811**	4·86	**4·54**	46·25	**57·29**
8. Murchison	108,050	**84,423**	9·04	**8·18**	46·94	**51·54**
9. Yalgoo	8,842	**8,195**	·74	**·79**	40·54	**44·41**
10. Mt. Margaret	106,563	**100,612**	8·91	**9·75**	34·80	**32·16**
11. North Coolgardie	59,513	**45,147**	4·98	**4·38**	66·31	**59·20**
12. Broad Arrow	22,290	**22,216**	1·86	**2·15**	29·93	**41·19**
13. North-East Coolgardie	10,861	**6,678**	·91	**·65**	57·34	**54·23**
14. East Coolgardie	670,788	**579,344**	56·11	**56·15**	35·40	**37·42**
15. Coolgardie	18,315	**13,618**	1·53	**1·32**	49·18	**66·59**
16. Yilgarn	91,124	**87,994**	7·62	**8·53**	37·69	**41·09**
17. Dundas	23,884	**21,595**	2·00	**2·09**	45·22	**47·56**
18. Phillips River	3,817	**5,419**	·32	**·53**	113·10	**175·05**
State generally	273	**619**	·02	**·06**	..	..
Totals and averages	1,195,499	**1,031,727**	100·00	**100·00**	38·41	**40·34**

The total gold yield of the State is as shown in Table 1, being the amount of gold exported and also that lodged at the Royal Mint, which total includes alluvial gold and gold not reported to the Department.

When comparisons are made as to the yield from any particular field with the preceding year, the figures reported to the Department are used.

With the exception of Kimberley and Phillips River all fields show decreases.

TABLE 4.

Number of Gold-producing Mines in the several Goldfields and Districts during 1915 and 1916.

Goldfield.	District.	1915.		1916.		Increase or Decrease.
		District.	Goldfield.	District.	Goldfield.	
Kimberley	..	..	..	..	..	..
Pilbara	Marble Bar	23	30	17	24	— 6
	Nullagine	7		7		
West Pilbara	..	..	4	..	3	— 1
Ashburton	..	..	..	..	..	..
Gascoyne	..	..	1	..	1	..
Peak Hill	..	..	13	..	12	— 1
East Murchison	Lawlers	13	46	11	42	— 4
	Wiluna	6		13		
	Black Range	27		18		
Murchison	Cue	13	112	11	82	— 30
	Meekatharra	48		38		
	Day Dawn	10		5		
	Mt. Magnet	41		28		
Yalgoo	..	..	26	..	27	+ 1
Mt. Margaret	Mt. Morgans	3	47	4	39	— 8
	Mt. Malcolm	20		11		
	Mt. Margaret	24		24		
North Coolgardie	Menzies	27	71	20	49	— 22
	Ularring	16		10		
	Niagara	8		6		
	Yerilla	20		13		
Broad Arrow	..	..	26	..	24	— 2
North-East Coolgardie	Kanowna	13	17	13	15	— 2
	Kurnalpi	4		2		
East Coolgardie	East Coolgardie	46	49	45	49	..
	Bulong	3		4		
Coolgardie	Coolgardie	38	48	33	46	— 2
	Kunanalling	10		13		
Yilgarn	..	..	62	..	58	— 4
Dundas	..	..	20	..	15	— 5
Phillips River	..	..	20	..	16	— 4
	Totals	..	592	..	502	— 90

Table 5.

Gold Yield from Registered Gold Mining Companies and Gold Mining Leases for the Years 1913, 1914, 1915, and 1916.

Goldfield.	Registered Companies producing over 12,000ozs.								Registered Companies producing under 12,000ozs.								Leases, exclusive of Sundry Claims and Treatments.							
	1913.		1914.		1915.		1916.		1913.		1914.		1915.		1916		1913.		1914.		1915.		1916.	
	No.	Fine ozs.	No.	Fine ozs.	No.	Fine ozs.	No.	Fine ozs.	No.	Fine ozs.	No.	Fine ozs.	No.	Fine ozs.	No.	Fine ozs.	No.	Fine ozs.	No.	Fine ozs.	No.	Fine ozs.	No.	Fine ozs.
Kimberley	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
Pilbara	...	...	..	...	...	...	...	...	1	451	1	727	1	90	...	...	30	4,106	29	3,233	29	5,598	24	4,208
West Pilbara ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	1,300	4	917	4	1,168	3	508
Gascoyne	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	80	1	14
Peak Hill	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	972	10	1,635	13	1,747	12	1,601
East Murchison ...	3	62,100	3	49,456	2	36,364	1	18,362	12	10,226	9	6,334	8	8,830	8	11,154	47	10,504	54	9,878	36	7,393	33	8,440
Murchison	2	40,174	2	33,366	2	29,456	1	15,423	7	16,316	8	18,525	6	10,942	5	10,715	99	56,494	110	58,886	104	61,333	76	52,121
Yalgoo	..	...	...	...	...	...	...	...	5	3,467	3	1,403	3	4,801	3	3,705	20	3,598	25	3,351	23	3,222	24	3,397
Mt. Margaret ...	1	63,313	1	58,936	2	73,721	2	71,579	12	14,895	12	16,504	10	21,784	8	23,406	47	8,117	34	8,153	35	7,251	29	3,603
N. Coolgardie ...	1	14,826	2	35,941	2	35,348	1	14,134	13	20,181	10	5,851	5	2,180	6	13,029	82	23,550	80	21,813	64	12,609	42	12,584
Broad Arrow	1	27,067	...	...	1	14,531	1	12,674	2	19	2	2,840	1	405	...	...	32	4,998	28	5,034	24	5,715	23	6,888
N.E. Coolgardie ...	...	...	..	...	...	...	...	...	5	5,706	1	4,573	1	4,403	1	3,020	32	3,908	20	3,137	16	3,983	14	2,228
E. Coolgardie ...	12	650,195	9	597,946	9	603,851	9	524,189	20	35,671	21	31,363	15	24,825	12	18,673	35	19,776	26	40,849	25	33,132	28	27,409
Coolgardie	...	...	...	...	...	...	...	...	5	19,008	8	8,190	7	4,570	5	2,610	40	9,084	35	8,970	41	9,683	41	7,462
Yilgarn	2	47,020	2	54,439	2	59,100	2	54,647	10	17,302	10	20,898	11	16,886	10	18,212	59	11,342	48	8,181	49	7,995	46	9,417
Dundas	1	13,825	1	13,507	1	13,633	1	12,158	2	4,031	2	1,996	2	1,047	1	266	20	7,570	16	9,684	17	7,865	13	7,742
Phillips River ...	...	...	...	...	...	...	...	...	7	210	10	1,093	5	630	1	376	15	2,429	13	3,358	15	3,130	15	4,994
Total... ...	23	918,520	20	843,591	21	866,004	18	723,166	101	147,486	97	120,297	75	101,396	60	105,166	574	167,748	532	187,079	496	171,904	424	152,616

TABLE 6.

Increase or Decrease in Output of certain producing Gold Mines in 1916, as compared with 1915.

Goldfield.	District.	Name of Mine.	Gold Production.		Increase or Decrease for Year, compared with 1915.
			1915.	1916.	
			fine ozs.	fine ozs.	fine ozs.
East Murchison ..	Lawlers	1. Waroonga G.M. Co., Ltd.	893·21	1,730·77	+ 837·56
Do. ..	Wiluna	2. Moonlight leases	802·72	1,330·17	+ 527·45
Do. ..	do.	3. Western Machinery Co., Ltd.	3,546·21	3,814·19	+ 267·98
Do. ..	do.	4. Wiluna G.Ms., Ltd.	..	2,471·71	+ 2,471·71
Do. ..	Black Range ..	5. Black Range Pinnacles Co., N.L.	14,759·00	2,941·80	— 11,817·20
Do. ..	do. ..	6. Yuanmi G.Ms., Ltd. (Youanme)	21,605·62	18,361·94	— 3,243·68
Murchison ..	Cue	7. Light of Asia and Queen of the May leases ..	3,234·31	2,794·54	— 439·77
Do. ..	Meekatharra ..	8. Commodore G.M. Co., N.L.	3,558·32	2,031·83	— 1,526·49
Do. ..	do. ..	9. Fenian leases	26,599·64	22,363·08	— 4,236·56
Do. ..	do. ..	10. Ingliston Consols Extended leases	12,749·75	13,880·03	+ 1,130·28
Do. ..	do. ..	11. Ingliston Extended G.Ms., Ltd.	4,877·52	4,110·56	— 766·96
Do. ..	do. ..	12. Ingliston leases	3,480·64	1,229·19	— 2,251·45
Do. ..	do. ..	13. Queenhills G.Ms., Ltd.	12,610·97	2,084·23	— 10,526·74
Do. ..	do. ..	14. Marmont	953·10	92·61	— 860·49
Do. ..	Day Dawn ..	15. Black Range Pinnacles Co., N.L.	..	2,488·00	+ 2,488·00
Do. ..	do. ..	16. Great Fingall Consolidated, Ltd.	16,845·96	15,422·87	— 1,423·09
Do. ..	Mount Magnet ..	17. Empress leases	1,419·98	1,350·42	— 69·56
Yalgoo ..	.. .. ..	18. Bullrush Gold Estates, N.L.	3,958·07	2,774·49	— 1,183·58
Mount Margaret ..	Mount Morgans ..	19. Westralia Mount Morgans Mines, N.L. ..	6,416·81	7,611·24	+ 1,194·43
Do. ..	Mount Malcolm ..	20. Sons of Gwalia, Ltd.	59,659·03	54,834·50	— 4,824·53
Do. ..	do. ..	21. North Star: Malcolm Prospecting Co., N.L.	486·24	..	— 486·24
Do. ..	Mount Margaret	22. Ida H. G.M. Co., Ltd.	10,778·91	6,549·11	— 4,229·80
Do. ..	do. ..	23. Lancefield G.Ms., Ltd.	14,062·33	24,730·19	+ 10,667·86
Do. ..	do. ..	24. Mary Mac G.M. Co., N.L.	2,682·57	881·74	— 1,800·83
Do. ..	do. ..	25. Nil Desperandum	580·19	255·80	— 324·39
North Coolgardie ..	Menzies ..	26. Gladsome leases	5,594·43	5,887·97	+ 293·54
Do. ..	do. ..	27. New Boddington	132·15	1,467·08	+ 1,334·93
Do. ..	do. ..	28. Sand Queen G.Ms., Ltd.	20,560·28	11,418·80	— 9,141·48
Do. ..	do. ..	29. Menzies Consolidated G.Ms., Ltd.	14,788·37	14,133·56	— 654·81
Do. ..	Ularring	30. Riverina South G.M. Co., N.L.	602·31	967·14	+ 364·83
Do. ..	Niagara	31. Cosmopolitan No. 2: Western Machinery Co., Ltd.	1,709·26	717·82	— 991·44
Broad Arrow ..	.. .. ..	32. Associated Northern Blocks (W.A.), Ltd. ..	14,531·50	12,673·95	— 1,857·55
Do. ..	.. .. ..	33. Lady Evelyn leases	1,608·74	446·69	— 1,162·05
Do. ..	.. .. ..	34. Oversight	*682·80	1,158·48 *400·50	+ 876·18
North-East Coolgardie	Kanowna ..	35. North White Feather G.Ms., Ltd.	4,403·94	3,019·92	— 1,384·02
East Coolgardie ..	East Coolgardie ..	36. Golden Ridge G.M. Co., Ltd.	6,861·30	5,836·80	— 1,024·50
Do. ..	do. ..	37. Associated G.Ms. of W.A., Ltd.	30,923·57	31,596·29	+ 672·72
Do. ..	do. ..	38. Associated Northern Blocks (W.A.), Ltd. ..	7,581·26	5,384·39	— 2,196·87
Do. ..	do. ..	39. Golden Horseshoe Estates Co., Ltd. ..	105,293·15	89,009·78	— 16,283·37
Do. ..	do. ..	40. Great Boulder Perseverance G.M. Co., Ltd.	57,895·74	47,920·80	— 9,974·94
Do. ..	do. ..	41. Great Boulder Proprietary G.Ms., Ltd. ..	137,340·96	123,336·91	— 14,004·05
Do. ..	do. ..	42. Idaho leases	3,838·04	4,153·94	+ 315·90
Do. ..	do. ..	43. Ironsides North leases	16,972·08	15,746·22	— 1,225·86
Do. ..	do. ..	44. Ivanhoe Gold Corporation, Ltd.	89,540·52	89,840·68	+ 300·16
Do. ..	do. ..	45. Kalgurli G.Ms., Ltd.	53,036·18	45,684·42	— 7,351·76
Do. ..	do. ..	46. Lake View and Star, Ltd.	57,532·86	42,816·93	— 14,715·93
Do. ..	do. ..	47. North Kalgurli (1912), Ltd.	1,763·28	1,493·85	— 269·43
Do. ..	do. ..	48. Oroya Links, Ltd.	36,859·09	23,960·98	— 12,898·11
Do. ..	do. ..	49. South Kalgurli Consolidated, Ltd.	35,429·78	31,021·63	— 4,408·15
Do. ..	do. ..	50. Adelaide Enterprise Prospecting Syndicate, N.L.	1,209·83	1,399·45	+ 189·62
Do. ..	do. ..	51. Hannan's Reward, Ltd.	1,140·88	2,164·59	+ 1,023·71
Do. ..	Bulong	52. Transcontinental leases	1,751·86	912·51	— 839·35
Coolgardie	Coolgardie ..	53. Burbanks Birthday G.Ms., Ltd.	1,019·64	911·99	— 107·65
Do. ..	do. ..	54. Burbanks Main Lode (1904), Ltd.	1,409·16	..	— 1,409·16
Do. ..	do. ..	55. Hidden Secret North leases	745·86	58·61	— 687·25
Do. ..	Kunanalling ..	56. Carbine leases	4,254·42	2,445·53	— 1,808·89
Yilgarn	.. .. ..	57. Bullfinch Proprietary (W.A.), Ltd.	23,631·17	17,825·85	— 5,805·32
Do. ..	.. .. ..	58. Corinthian North G.M.s., Ltd.	9,218·17	3,876·89	— 5,341·28
Do. ..	.. .. ..	59. Great Victoria leases	1,357·76	1,830·63	+ 472·87
Do. ..	.. .. ..	60. Edna May Battler G.M. Co., N.L.	195·97	1,713·39	+ 1,517·42
Do. ..	.. .. ..	61. Edna May Central G.M. Co., N.L.	5,424·47	11,811·79	+ 6,387·32
Do. ..	.. .. ..	62. Edna May G.M. Co., N.L.	35,468·83	36,821·40	+ 1,352·57
Dundas	.. .. ..	63. Mararoa G.M. Co., N.L.	13,633·94	12,157·83	— 1,476·11
Do. ..	.. .. ..	64. Princess Royal G.M. Co., N.L.	869·35	235·58	— 603·77
Do. ..	.. .. ..	65. Viking No. 1 leases	5,856·83	5,737·72	— 119·11
Phillips River ..	.. .. ..	66. Fair Play leases	1,200·34	2,127·76	+ 927·42
Do. ..	.. .. ..	67. Gem Consolidated leases	157·84	1,052·62	+ 894·78

* Dolhed.

TABLE 7.

Averages of Gold Ore raised and treated, and Gold produced therefrom, per man employed on the several Goldfields of the State, during 1915 and 1916.

Goldfield.	1915.				1916.			
	Tons of Gold Ore raised and treated.		Fine Ounces of Gold produced therefrom.		Tons of Gold Ore raised and treated.		Fine Ounces of Gold produced therefrom.	
	Per man employed under ground.	Per man employed above and under ground.	Per man employed under ground.	Per man employed above and under ground.	Per man employed under ground.	Per man employed above and under ground.	Per man employed under ground.	Per man employed above and under ground.
	tons.	tons.	fine ozs.	fine ozs.	tons.	tons.	fine ozs.	fine ozs.
1. Kimberley	..	..	..	..	..	..	..	..
2. Pilbara	107·65	40·36	154·28	57·85	**56·53**	**25·26**	**94·48**	**42·23**
3. West Pilbara	49·22	27·07	111·72	61·44	**114·83**	**53·00**	**91·28**	**42·13**
4. Ashburton	..	..	..	..	..	..	..	..
5. Gascoyne	..	..	..	..	..	**18·00**	..	**7·24**
6. Peak Hill	246·20	123·10	271·03	135·51	**180·35**	**90·17**	**229·63**	**114·81**
7. East Murchison ..	268·89	143·75	146·39	78·26	**235·30**	**129·02**	**155·57**	**85·30**
8. Murchison	275·71	143·72	152·32	79·40	**237·06**	**128·37**	**141·17**	**76·44**
9. Yalgoo	119·21	60·59	56·88	28·91	**109·62**	**56·38**	**56·25**	**28·93**
10. Mt. Margaret	422·88	239·38	173·22	98·05	**521·20**	**280·69**	**195·85**	**105·47**
11. North Coolgardie ..	168·65	98·05	131·64	76·53	**156·11**	**90·48**	**108·61**	**62·95**
12. Broad Arrow	421·96	246·58	148·64	86·86	**318·21**	**194·16**	**139·95**	**85·39**
13. North-East Coolgardie	155·57	87·62	105·12	59·20	**120·24**	**67·05**	**75·71**	**42·22**
14. East Coolgardie ..	610·52	349·57	254·41	145·67	**579·15**	**323·87**	**254·16**	**142·13**
15. Coolgardie	159·47	74·10	92·33	42·90	**142·40**	**58·49**	**103·53**	**42·53**
16. Yilgarn	413·97	218·43	183·65	96·90	**363·89**	**214·81**	**175·86**	**103·81**
17. Dundas	337·56	195·66	179·69	104·65	**347·48**	**196·79**	**188·56**	**106·78**
18. Phillips River	143·36	77·49	190·83	103·15	**119·52**	**71·06**	**246·31**	**146·45**
Total Averages ..	**431·39**	**237·95**	195·07	107·60	**411·19**	**227·20**	**193·35**	**106·83**

The average value of gold produced per man employed above and below ground was £457·06 in 1915 and £453·78 in 1916. The average tonnage of ore raised shows a decrease from 237·95 tons to 227·20 tons. The average tonnage raised per man is again highest in the East Coolgardie Field, viz., 323·87 tons, average value £603·73, the next being Mt. Margaret Field, with 280·69 tons, average value £448·01.

TABLE 8.

Output of Gold from the several States of Australia, the Northern Territory, the Territory of Papua, and the Dominion of New Zealand during 1916.

State.	Output of Gold.	Value.	Percentage of total Output of Australasia.
	Fine ozs.	£	
1. Western Australia	1,061,398	4,508,532	54·23
2 Victoria	256,653	1,090,194	13·11
3. Queensland	215,162	913,951	10·98
4. New South Wales	108,145	459,370	5·52
5. Tasmania	15,790	67,072	·81
6. South Australia	7,769	33,000	·40
7. Northern Territory	601	2,554	·04
8. Territory of Papua	9,525	40,460	·49
9. New Zealand	282,318	1,199,212	14·42
Total	1,957,361	8,314,345	100·00

TABLE 9.

Dividends paid by Western Australian Gold Mining Companies during 1916 and Total to date.

(Compiled from information supplied by the Government Statistician's Office and the Chamber of Mines of W.A., Kalgoorlie.)

Goldfield.	Name of Company.	Capital.				Dividends.		
		Authorised.	No. of Shares issued.	Par Value Shares.	Paid up to.	Paid in 1916.		Grand Total paid to end of 1916.
						No.	Total Amount.	
		£		£ s. d.	£ s. d.		£	£
Peak Hill	Various Companies	..	..	..	..	..	..	160,666
East Murchison	Various Companies	..	..	..	..	..	..	437,968
Murchison	Various Companies	..	..	..	..	..	..	1,835,170
Mt. Margaret	Sons of Gwalia, Ltd.	350,000	325,000	1 0 0	1 0 0	4	40,625	1,022,863
Do.	Other Companies	..	..	..	..	..	..	376,213
North Coolgardie	Menzies Consolidated G.Ms., Ltd.	225,000	224,015	1 0 0	1 0 0	1	5,600	16,800
Do.	Other Companies	..	..	..	..	..	..	552,631
North-East Coolgardie	Various Companies	..	..	..	..	..	..	82,971
East Coolgardie	Golden Horseshoe Estates Co., Ltd.	1,500,000	300,000	5 0 0	5 0 0	2	75,000	3,292,500
Do.	Great Boulder Proprietary G.Ms., Ltd.	175,000	1,750,000	0 2 0	0 2 0	4	262,500	5,006,800
Do.	Ivanhoe Gold Corporation, Ltd.	1,000,000	200,000	5 0 0	5 0 0	4	105,000	3,528,750
Do.	Kalgurli G.Ms., Ltd.	120,000	120,000	1 0 0	1 0 0	2	30,000	1,585,500
Do.	South Kalgurli Consolidated, Ltd.	150,000	250,007	0 10 0	0 10 0	1	6,250	168,125
Do.	Other Companies	..	..	..	..	..	..	7,045,578
Coolgardie	Various Companies	..	..	..	..	..	..	339,495
Yilgarn	Bullfinch Proprietary (W.A.), Ltd.	500,000	476,150	1 0 0	1 0 0	1	11,904	101,182
Do.	Edna May G.M. Co., N.L.	25,000	42,850	0 10 0	0 10 0	12	77,130	227,105
Do.	Edna May Central G.Ms., N.L.	30,000	60,000	0 10 0	0 10 0	3	8,874	8,874
Do.	Other Companies	..	..	..	..	..	..	51,078
Dundas	Mararoa G.M. Co., N.L.	40,000	100,000	0 8 0	0 3 0	3	10,000	140,000
Do.	Other Companies	..	..	..	..	..	..	147,000
	Total Dividends paid during 1916	..	..	..	..	..	£632,883	..
	Total Dividends paid to end of 1916 ..	..	..	..	..	..	..	£26,127,269

TABLE 10.

Value of Gold Production and Percentage of Dividends paid.

Year.	Value of Gold Production.	Dividends paid by Gold Mining Companies.	Dividends % of Total Production.	Value of Gold Production by Gold Mining Companies only.	Dividends % upon Production by Gold Mining Companies.
	£	£	%	£	%
Prior to 1907 ..	70,793,659	15,738,376	22·23	..	..
1907	7,210,749	1,738,123	24·10	5,722,273	30·37
1908	6,999,882	1,487,303	21·24	5,503,784	27·01
1909	6,776,274	1,359,088	20·05	5,398,725	25·17
1910	6,246,848	1,028,393	16·46	4,815,541	21·36
1911	5,823,075	826,976	14·20	4,628,666	17·87
1912	5,448,385	814,092	14·94	4,304,161	18·91
1913	5,581,701	910,326	16·30	4,528,106	20·10
1914	5,237,353	799,392	15·26	4,094,336	19·52
1915	5,140,228	792,317	15·41	4,109,254	19·28
1916	4,508,532	632,883	14·04	3,518,531	17·99
Total ..	129,766,686	26,127,269	20·13	*46,623,377	*22·28

* Ten last years only.

TABLE 11.

Quantity and Value of Minerals, other than Gold and Coal, reported to the Mines Department during 1916.

Goldfield, District, or Mineral Field.	1916.		Increase or Decrease for Year compared with 1915.	
	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£
BLACK TIN.				
Pilbara Goldfield (Marble Bar District)	153·17	15,939	+ 74·52	+ 8,306
Greenbushes Mineral Field	281·74	27,319	+ 34·41	+ 5,888
Total	434·91	43,258	+ 108·93	+ 14,194
PYRITIC ORE.				
Mt. Margaret Goldfield (Mt. Morgans District)	4,409·22	2,263	— 2,148·40	— 105
COPPER ORE				
West Pilbara Goldfield	948·87	16,116	+ 634·12	+ 12,570
Ashburton Goldfield	2·61	27	— 143·39	— 3,717
Peak Hill Goldfield	250·93	• 8,268	+ 13·35	+ 650
East Murchison Goldfield	63·42	1,311	+ 52·49	+ 1,164
Murchison Goldfield	..	..	— 33·70	— 492
Yalgoo Goldfield	..	..	— 4·99	— 95
Phillips River Goldfield	5,428·08	48,618	+ 1,747·05	+ 24,525
State generally	3·47	36	— 66·11	— 1,227
Total	6,697·38	74,376	+ 2,198·82	+ 33,378
LEAD ORE.				
West Pilbara Goldfield	44·00	770	+ 44·00	+ 770
Northampton Mineral Field	34,578·34	110,872	+ 18,900·04	+ 81,476
Total	34,622·34	111,642	+ 18,944·04	+ 82,246
SILVER-LEAD ORE.				
Ashburton Goldfield	67·83	554	— 231·13	— 3,875
MAGNESITE.				
East Coolgardie Goldfield (Bulong District)	97·50	97	— 504·00	— 504
WOLFRAM ORE.				
Murchison Goldfield	20·00	117	+ 20·00	+ 117
Yalgoo Goldfield	..	..	— ·25	— 27
Total	20·00	117	+ 19·75	+ 90
ANTIMONY.				
West Pilbara Goldfield	20·78	491	+ 20·78	+ 491

The output of Black Tin shows increases in tonnage of 108.93 tons, and in value of £14,194. In Pyritic Ore there was a decrease of 2,148.40 tons and in value of £105. In Copper Ore there were increases in tonnage of 2,198.82 tons, and in value of £33,378, and in Lead Ore of 18,944.04 tons, value £82,246. Silver Lead Ore shows decreases in tonnage of 231.13 and in value of £3,875, and Magnesite 504.00 tons, value £504, while Wolfram shows increases in tonnage of 19.75 tons, and in value £90, and Antimony 20.78 tons, value £491.

The production of Tin was confined to Pilbara and Greenbushes Fields, while Copper Ore came from West Pilbara, Ashburton, Peak Hill, East Murchison and Phillips River Fields. Lead Ore came from Northampton Mineral Field and West Pilbara Goldfield, and Silver-Lead Ore from Ashburton. Wolfram was produced by Murchison Goldfield and Antimony by West Pilbara Goldfield.

It will be observed that the figures in this table differ from those in Table 1. The figures above are those reported to the Department, and this table is published as an index to the amount of mining in each field named.

TABLE 12.

Quantity of Coal raised during 1915 and 1916, and estimated Value thereof, with Number of Men employed, and Output per Man.

Coalfield.	Year.	Quantity raised.	Estimated Value.	Men employed.		Quantity raised.	
				Above ground.	Underground.	Per Man employed underground.	Per Man employed above and underground.
		tons.	£			tons.	tons.
Collie	1915	286,666	137,859	123	375	764	575
	1916	301,526	147,823	102	356	847	658

The number of men employed at Collieries has decreased by 40, and the output increased by 14,860 tons.

PART III.—LEASES AND OTHER HOLDINGS UNDER THE VARIOUS ACTS RELATING TO MINING.

TABLE 13.

Total Number and Acreage of Leases held for Mining on 31st December, 1915 and 1916.

Description of Leases.	1915.		1916.	
	No.	Acreage.	No.	Acreage.
Gold mining leases on Crown land	1,301	19,561	1,139	16,745
„ „ „ private property ...	...	...	...	...
Mineral leases on Crown land	228	32,875	235	33,670
„ „ private property	2	68	2	96
	1,531	52,504	1,376	50,511

The total number of leases held for mining decreased by 155, and the area by 1,993 acres, as compared with 1915. Leases for gold mining decreased by 162, and in area by 2,816 acres. The number of mineral leases increased by 7, and the area by 823 acres.

TABLE 14.

Number and Acreage of Gold Mining Leases in force each year for the Five Years ending the 31st December, 1916.

GOLDFIELDS.		DISTRICTS.		1912.		1913.		1914.		1915.		1916.		Percentage of Total Acreage.		Increase or Decrease for 1916 compared with 1915.		GOLDFIELDS.
Name.	Proclaimed.	Name.	Proclaimed.	Leases.	Acreage.	Leases.	Acreage.	Leases.	Acreage.	Leases.	Acreage.	Leases.	Acreage.	1915.	1916.	Increase.	Decrease.	
Kimberley ...	20-5-86	... ...	...	...	...	...	...	..	..	..	..	..	..	..	..	..	..	Kimberley
Yilgarn	1-10-88	... ...	...	196	3,659	174	3,288	153	2,932	218	4,381	153	2,985	22·40	17·83	..	1,396	Yilgarn
Pilbara	1-10-88	Marble Bar ...	6-11-96	34	425	32	325	26	265	24	223	18	169	1·60	1·55	..	53	Pilbara
		Nullagine ...	6-11-96	14	135	10	100	18	149	10	89	10	90					
Ashburton ...	11-12-90	... ...	...	...	...	2	48	..	..	..	..	..	..	..	..	..	..	Ashburton
Murchison ...	24-9-91	Cue	7-12-94	48	629	45	577	29	321	24	242	29	323	13·04	12·68	..	427	Murchison
		Meekatharra ...	7-12-94	117	1,497	93	1,226	94	1,227	98	1,317	80	1,052					
		Day Dawn ...	10-1-96	48	453	40	376	44	477	46	507	40	428					
		Mount Magnet ...	7-12-94	44	461	40	384	42	381	45	485	35	321					
Dundas	31-8-93	... ...	...	56	674	54	631	50	596	43	543	38	465	2·78	2·78	..	78	Dundas
Coolgardie ...	6-4-94	Coolgardie ...	7-12-94	57	733	59	773	55	758	78	1,132	44	517	6·71	4·52	..	555	Coolgardie
		Kunanalling ...	1-9-97	26	364	22	281	17	221	14	179	19	239					
East Coolgardie ...	1-10-94	East Coolgardie	7-12-94	171	2,417	168	2,353	155	2,140	149	2,028	153	2,186	11·01	13·78	152	..	East Coolgardie
		Bulong	15-4-96	7	109	12	217	14	241	7	126	7	120					
Yalgoo	23-1-95	... ...	...	60	803	54	713	50	753	77	1,295	59	917	6·62	5·48	..	378	Yalgoo
North Coolgardie	28-6-95	Menzies	15-4-96	54	759	54	771	50	730	42	609	49	752	6·83	9·04	176	..	North Coolgardie
		Ularring ...	15-4-96	33	412	30	383	21	299	21	232	23	250					
		Yerilla	15-4-96	34	489	42	542	29	400	26	401	24	356					
		Niagara	1-4-97	24	334	15	224	14	197	8	95	11	155					
East Murchison ...	28-6-95	Lawlers	1-7-04	32	433	22	277	20	233	21	235	29	339	7·10	8·20	..	14	East Murchison
		Black Range ...	1-7-04	109	1,598	106	1,512	99	1,337	62	787	44	597					
		Wiluna	1-3-10	67	1,113	53	903	32	535	23	365	27	437					
North-East Coolgardie	15-4-96	Kanowna ...	15-4-96	57	908	46	602	31	381	25	313	34	512	1·81	3·29	195	..	N.E. Coolgardie
		Kurnalpi ...	15-4-96	62	1,065	6	84	5	47	4	42	4	38					
Broad Arrow ...	20-11-96	... ...	...	57	904	79	1,296	43	610	44	651	39	591	3·32	3·52	..	60	Broad Arrow
Peak Hill ...	1-4-97	... ...	...	20	279	23	299	14	159	15	156	14	144	·80	·85	..	12	Peak Hill
Mount Margaret...	1-4-97	Mount Margaret	1-4-97	70	1,170	59	1,043	70	1,197	75	1,303	65	1,074	14·71	15·09	..	351	Mount Margaret
		Mount Malcolm	1-4-97	89	1,657	83	1,535	79	1,462	65	1,290	66	1,287					
		Mount Morgans	2-4-02	21	356	20	321	8	158	18	286	9	167					
West Pilbara ...	1-11-95	Crown Lands ...	...	9	108	7	82	4	42	3	36	3	42	·19	·25	6	..	West Pilbara
Do.	...	Private Property	...	1	6	1	6	1	6	..	..	..	..	..	..	..	..	Do.
Phillips River ...	14-9-00	... ...	...	17	257	13	210	12	186	12	185	11	176	·94	1·05	..	9	Phillips River
Other Localities ...	...	... ...	...	...	...	...	...	..	..	..	..	..	..	..	..	..	..	Other Localities
Gascoyne	15-4-97	... .	...	2	36	...	...	..	..	4	28	2	16	·14	·09	..	12	Gascoyne
		Totals ...	...	1,636	24,243	1,464	21,382	1,282	18,440	1,301	19,561	1,139	16,745	100·00	100·00	529	3,345	

Decrease for 1916: Leases 162, acres 2,816.

Taking all the goldfields, the largest percentage of the area leased for gold mining is in the Yilgarn Goldfield, viz., 17.83, then Mount Margaret, East Coolgardie, Murchison, North Coolgardie and East Murchison with percentages of 15.09, 13.78, 12.68, 9.04 and 8.20 respectively.

TABLE 15.

Number and Acreage of Mineral Leases in force 31st December each year, for the Five Years ending 31st December, 1916.

Mining Districts.		Sub-Districts.		1912.		1913.		1914.		1915.		1916.		Increase or Decrease for 1916, compared with 1915.		Districts.
Name.	Proclaimed.	Name.	Proclaimed.	Leases.	Acreage.	Leases.	Acreage.	Leases.	Acreage.	Leases.	Acreage.	Leases.	Acreage.	Increase.	Decrease.	
Ashburton ...	11-12-90	...	...	4	83	4	83	5	69	8	177	6	79	...	98	Ashburton
Murchison ...	24-9-91	Cue ...	7-12-94	21	615	9	255	6	163	4	96	1	18			Cue
		Meekatharra ...	7-12-94	1	12	...	...	...	...	...	...	1	12	...	66	Meekatharra
		Day Dawn ...	10-1-96	1	6	1	6	1	6	1	6	1	6			Day Dawn
		Mt. Magnet ...	7-12-94	...	...	...	...	...	...	...	...	...	...			Mt. Magnet
Greenbushes ...	7-4-92	...	...	58	859	51	761	44	627	39	574	35	522	...	52	Greenbushes
Pilbara	16-6-92	Marble Bar ...	16-6-92	37	1,033	21	771	8	205	7	127	8	145	18	...	Marble Bar
		Nullagine ...	6-11-96	1	3	...	...	...	...	...	...	...	...			Nullagine
Yalgoo	23-1-95	...	...	1	24	11	320	11	256	4	84	6	144	60	...	Yalgoo
Yilgarn	22-3-95	...	...	2	23	1	12	2	15	1	3	...	...	...	3	Yilgarn
Coolgardie ...	22-3-95	Coolgardie ...	22-3-95	...	...	...	...	...	...	1	9	1	9	...	...	Coolgardie
		Kunanalling ...	1-9-97	...	...	...	...	...	...	...	...	...	...			Kunanalling
East Coolgardie ...	22-3-95	East Coolgardie	22-3-95	8	40	6	29	5	23	4	19	3	13	...	6	East Coolgardie
		Bulong ...	15-4-96	...	...	...	...	...	...	...	...	...	...			Bulong
East Murchison ...	28-6-95	Lawlers ...	1-7-04	4	96	1	24	...	...	1	24	1	24			Lawlers
		Black Range ...	1-7-04	4	24	3	31	2	6	...	...	...	...	...	...	Black Range
		Wiluna ...	1-3-10	...	...	...	...	...	...	1	10	1	10			Wiluna
North Coolgardie	16-8-95	Menzies ...	15-4-96	...	...	...	...	...	...	...	...	...	...			Menzies
		Ularring ...	15-4-96	...	...	...	...	...	...	...	...	...	...			Ularring
		Yerilla ...	15-4-96	...	...	...	...	...	...	...	...	...	...	...	...	Yerilla
		Niagara ...	1-3-97	...	...	...	...	...	...	...	...	...	...			Niagara
West Pilbara ...	1-11-95	...	...	16	552	16	588	16	570	12	470	19	642	172	...	West Pilbara
Dundas	27-12-95	...	...	1	48	1	48	1	48	1	48	...	...	...	48	Dundas
Collie	21-2-96	...	...	88	27,126	89	27,417	91	28,057	97	29,897	100	30,602	10,705	...	Collie
North-East Coolgardie	15-4-96	Kanowna ...	15-4-96	...	...	...	...	...	...	...	...	...	...	...	...	Kanowna
		Kurnalpi ...	15-4-96	...	...	...	...	...	...	...	...	...	...			Kurnalpi
Broad Arrow ...	20-11-96	...	...	1	20	1	20	...	...	...	...	1	20	20	...	Broad Arrow
Northampton ...	1-1-97	Crown Lands...	...	1	10	13	212	10	157	8	107	8	97	...	10	Northampton
		Private Property	...	1	20	1	48	2	68	2	68	1	48	...	20	
Peak Hill ...	1-4-97	...	...	...	...	4	108	24	550	9	255	11	300	45	...	Peak Hill
Mt. Margaret ...	1-4-97	Mt. Margaret...	1-4-97	...	...	...	...	...	...	...	...	...	...			Mt. Margaret
		Mt. Malcolm ...	1-4-97	...	...	...	...	1	48	...	...	...	...	...	60	Mt. Malcolm
		Mt. Morgans ...	2-4-02	6	134	6	134	6	134	6	134	4	74			Mt. Morgans
Gascoyne	15-4-97	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Gascoyne
Yandanooka ...	1-12-97	Crown Lands...	...	2	40	...	...	...	...	...	...	...	...	...	...	Yandanooka
		Private Property	...	...	...	...	...	...	...	...	...	...	...	...	...	
Phillips River ...	1-7-99	...	...	21	607	22	561	23	559	13	407	15	409	2	...	Phillips River
Other localities ...	...	Crown Lands ...	...	22	984	28	733	14	519	11	428	13	544	116	...	Other Localities
		Private Property	...	...	...	...	...	...	...	...	..	1	48	48	...	
Totals ...	...	...	...	301	32,359	289	32,161	272	32,080	230	32,943	237	33,766	11,186	363	

Increase for 1916: 7 leases, for an increased area of 823 acres.

In the Collie Field the largest area is held, viz., 30,602 acres, worked entirely for Coal; then follow West Pilbara, 642 acres, for Copper; Greenbushes, 522 acres for Tin; Phillips River 409 acres, and Peak Hill, 300 acres, for Copper.

TABLE 16.

Number and Acreage of Mineral Leases in force on 31st December, 1916, showing Minerals for which they are worked.

Goldfield or Mineral Field.	District.	Minerals.															
		Coal.		Tin.		Copper.		Iron.		Clay.		Limestone.		Wolfram.		Silver and Lead.	
		Leases.	Acres.	Leases.	Acres.	Leases.	Acres.	Leases.	Acres.	Leases.	Acres.	Leases.	Acres.	Leases.	Acres.	Leases.	Acres.
Pilbara	Marble Bar	..	..	5	107	..	..	..	..	..	..	..	..	..	..	..	..
West Pilbara	..	..	..	..	..	18	624	..	..	..	..	..	..	..	..	1	18
Ashburton	..	..	..	..	..	2	34	..	..	..	..	..	..	..	..	3	35
East Murchison	Lawlers	..	..	1	24	..	..	..	..	..	..	..	..	..	..	..	..
	Wiluna	..	..	..	..	..	..	..	..	..	..	1	10	..	..	..	..
Murchison	Cue	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Day Dawn	..	..	..	..	1	12	..	..	1	6	..	..	..	..	..	..
	Meekatharra	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Yalgoo	..	..	..	2	36	..	..	..	..	..	..	..	..	1	24	..	..
Mt. Margaret	Mt. Morgans	..	..	..	..	3	69	..	..	..	..	1	5	..	..	..	..
East Coolgardie	East Coolgardie	..	..	..	..	..	..	..	..	3	13	..	..	..	..	..	..
Phillips River	..	..	..	..	..	15	409	..	..	..	..	..	..	..	..	..	..
Collie	..	100	30,602	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Greenbushes	..	..	..	35	522	..	..	..	..	..	..	..	..	..	..	..	..
Northampton	..	..	..	..	..	1	10	..	..	..	..	..	..	..	..	..	..
Northampton	(Private Property)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Peak Hill	..	..	..	..	..	11	300	..	..	..	..	..	..	..	..	..	..
Outside Proclaimed Fields	..	..	..	1	48	1	36	7	304	..	..	..	..	..	..	..	..
Coolgardie	..	..	..	1	9	..	..	..	..	..	..	..	..	..	..	..	..
Broad Arrow	..	..	..	..	..	1	20	..	..	..	..	..	..	..	..	..	..
Totals	..	100	30,602	45	746	53	1,514	7	304	4	19	2	15	1	24	4	53

Table 16.

Number and Acreage of Mineral Leases, etc.—continued.

Goldfield or Mineral Field.	District.	Minerals.												Total No. of Leases.	Total Acreage.
		Tantalite.		Lead.		Bismuth.		Graphite.		Beryl.		Molybdenite.			
		Leases.	Acres.	Leases	Acres.	Leases.	Acres.	Leases.	Acres.	Leases.	Acres.	Leases.	Acres.	Leases.	Acres.
Pilbara	Marble Bar	2	20	..	..	1	18	..	..	..	..	..	..	8	145
West Pilbara	..	..	..	..	..	..	..	..	..	..	..	..	..	19	642
Ashburton	..	..	..	1	10	..	..	..	..	..	..	..	..	6	79
East Murchison	Lawlers	..	..	..	..	..	..	..	..	..	..	..	..	1	24
	Wiluna	..	..	..	..	..	..	..	..	..	..	..	..	1	10
Murchison	Cue	..	..	..	..	..	..	..	..	1	18	..	..	1	18
	Day Dawn	..	..	..	..	..	..	..	..	..	..	..	..	1	6
	Meekatharra	..	..	..	..	..	..	..	..	..	..	..	..	1	12
Yalgoo	..	..	..	..	..	..	..	..	..	..	..	3	84	6	144
Mt. Margaret	Mt. Morgans	..	..	..	..	..	..	..	..	..	..	..	..	4	74
East Coolgardie	East Coolgardie	..	..	..	..	..	..	..	..	..	..	..	..	3	13
Phillips River	..	..	..	..	..	..	..	..	..	..	..	..	..	15	409
Collie	..	..	..	..	..	..	..	..	..	..	..	..	..	100	30,602
Greenbushes	..	..	..	..	..	..	..	..	..	..	..	..	..	35	522
Northampton	..	..	..	7	87	..	..	..	..	..	..	..	..	8	97
Northampton	(Private Property)	..	..	1	48	..	..	..	..	..	..	..	..	1	48
Peak Hill	..	..	..	..	..	..	..	..	..	..	..	..	..	11	300
Outside Proclaimed Fields	..	..	..	..	..	..	..	5	204	..	..	..	..	14	592
Coolgardie	..	..	..	..	..	..	..	..	..	..	..	..	..	1	9
Broad Arrow	..	..	..	..	..	..	..	..	..	..	..	..	..	1	20
Totals	..	2	20	9	145	1	18	5	204	1	18	3	84	237	33,766

TABLE 17.

Number and Acreage of Miscellaneous Leases in force 31st December, 1916.

Goldfield.	District.	Leases.										Total.	
		Tailings.		Tramway.		Water.		Machinery.		Residence.			
		No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.
Yalgoo	.. ..	..	..	..	..	..	..	1	24	..	..	1	24
West Pilbara	.. ..	..	..	2	25	..	..	..	..	..	..	2	25
East Murchison	Black Range	1	24	..	..	..	..	..	..	1	2	2	26
Murchison	Meekatharra	1	10	..	..	..	..	..	..	..	..	1	10
	Day Dawn	..	..	..	..	..	..	..	..	1	1	1	1
	Mt. Magnet	1	10	..	..	..	..	..	..	..	..	1	10
Mt. Margaret	Mt. Margaret	1	22	..	..	..	..	..	..	..	..	1	22
North Coolgardie	Menzies	1	12	..	..	2	6	..	..	..	..	3	18
East Coolgardie	East Coolgardie ..	16	341	..	..	2	47	3	21	1	2	22	411
Coolgardie	Coolgardie	..	..	..	..	1	13	..	..	..	..	1	13
Phillips River	.. ..	..	..	2	3	..	..	..	..	..	..	2	3
	Total	21	419	4	28	5	66	4	45	3	5	37	563

Table 18.

Claims and Authorised Holdings under "The Mining Act, 1904," and Regulations existing on 31st December, 1915, and 1916.

Goldfield or Mineral Field.	District.	Prospecting Areas.				Water Rights.				Lode Claims.		Alluvial Claims.	
		Number.		Acreage.		Number.		Acreage.					
		1915.	1916.	1915.	1916.	1915.	1916.	1915.	1916.	1915.	1916.	1915.	1916.
Northampton	..	4	23	56	303	..	..	..	..	..	..	..	..
Pilbara	Marble Bar	19	11	318	109	2	4	2	5	3	2	2	5
Do.	Nullagine	8	7	97	100	..	2	..	13	8	6	..	..
West Pilbara	..	6	1	88	18	1	1	5	5	1	1	..	..
Ashburton	..	..	3	..	40	..	..	..	..	..	..	..	..
Peak Hill	..	..	21	..	272	..	5	..	18	..	11	..	..
East Murchison	Lawlers	19	7	245	94	14	12	18	16	..	..	..	..
Do.	Wiluna	21	18	323	236	6	6	12	12	..	..	..	..
Do.	Black Range	25	10	216	167	2	2	6	6	..	..	1	..
Murchison	Cue	16	27	225	267	2	3	3	13	2	2	1	1
Do.	Meekatharra	34	25	505	357	1	2	1	2	..	..	..	..
Do.	Day Dawn	19	7	229	73	11	14	21	36	..	..	..	..
Do.	Mt. Magnet	37	29	413	270	2	3	2	3	..	..	..	..
Yalgoo	..	76	25	1,288	414	4	1	18	3	..	..	..	..
Mt. Margaret	Mt. Morgans	6	10	70	104	5	5	13	13	..	1	..	..
Do.	Mt. Malcolm	25	17	373	273	27	24	195	191	..	..	..	..
Do.	Mt. Margaret	35	22	499	287	26	24	63	59	..	..	4	..
North Coolgardie	Menzies	23	26	239	341	8	8	26	24	..	..	..	..
Do.	Ularring	12	9	118	102	4	1	10	1	..	..	..	..
Do.	Niagara	9	7	126	99	4	5	8	6	..	..	..	..
Do.	Yerilla	18	34	286	417	7	8	12	23	..	..	..	..
Broad Arrow	..	48	34	688	498	5	8	13	24	6	..	..	..
N.E. Coolgardie	Kanowna	8	3	58	42	3	4	5	6	5	4	..	..
Do.	Kurnalpi	2	..	27	..	..	..	..	..	..	..	..	..
East Coolgardie	East Coolgardie	50	64	689	932	9	9	29	29	2	6	..	2
Do.	Bulong	4	3	61	42	..	..	..	..	..	1	..	..
Coolgardie	Coolgardie	89	44	1,192	555	10	10	35	35	2	1	..	..
Do.	Kunanalling	7	9	109	139	7	7	42	42	..	..	..	..
Yilgarn	..	100	33	1,775	529	3	1	6	2	..	..	..	..
Dundas	..	15	10	211	141	9	14	26	81	1	2	..	..
Phillips River	..	15	15	238	227	2	2	22	22	..	..	..	..
Collie	..	..	1	..	2,900	..	..	..	..	..	..	..	..
Greenbushes	..	..	..	..	..	12	12	79	72	..	1	18	18
Gascoyne	..	..	..	..	..	..	..	..	..	..	..	..	..
Outside Proclaimed Fields	..	13	18	6,455	7,172	..	..	..	..	..	..	..	..
Totals	..	763	573	*17,217	†17,520	186	197	672	762	30	38	26	26
Increase or Decrease for 1916 compared with 1915	..	—190		+303		+11		+90		+8		..	

Goldfield or Mineral Field.	District.	Dredging Claims.		Residence Areas.		Business Areas.		Machinery Areas.		Tailings Areas.		Garden Areas.		Washing Areas.	
		1915.	1916.	1915.	1916.	1915.	1916.	1915.	1916.	1915.	1916.	1915.	1916.	1915.	1916.
Northampton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pilbara	Marble Bar	..	..	1	1	12	12	1	2	1	1	5	4	..	..
Do.	Nullagine	3	3	3	3	2	2	1	1	..	..	3	3	..	..
West Pilbara	..	..	..	13	9	18	16	2	2	..	..	3	3	..	..
Ashburton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Peak Hill	..	..	..	..	3	..	..	..	4	..	2	..	..	..	..
East Murchison	Lawlers	..	..	1	1	1	1	4	4	6	6	2	2	..	..
Do.	Wiluna	..	..	1	..	..	..	..	..	..	..	4	4	..	..
Do.	Black Range	..	..	199	76	5	1	3	4	2	1	8	8	..	..
Murchison	Cue	..	..	7	7	3	3	..	..	1	1	1	1	..	..
Do.	Meekatharra	..	..	4	4	9	9	3	3	2	2	1	1	..	..
Do.	Day Dawn	..	..	4	13	23	21	..	..	..	..	4	4	..	..
Do.	Mt. Magnet	..	..	1	1	3	1	2	2	1	1	7	7	..	..
Yalgoo	..	..	..	3	4	45	37	5	5	..	..	1	..	..	..
Mt. Margaret	Mt. Morgans	..	..	..	..	..	..	2	1	..	..	6	6	..	..
Do.	Mt. Malcolm	..	..	1	1	4	4	..	..	2	3	14	12	..	..
Do.	Mt. Margaret	..	..	11	8	15	15	5	5	1	1	10	11	..	..
North Coolgardie	Menzies	..	..	31	29	13	11	3	3	1	2	8	7	..	..
Do.	Ularring	..	..	..	..	1	4	1	1	1	..	..	..	..	..
Do.	Niagara	..	..	..	..	1	..	1	1	2	2	2	2	..	..
Do.	Yerilla	..	..	..	..	3	3	2	1	1	1	1	1	..	..
Broad Arrow	..	..	..	..	..	..	13	2	..	2	1	..	..	..	..
N.E. Coolgardie	Kanowna	..	..	..	..	..	..	3	3	2	2	4	3	..	..
Do.	Kurnalpi	..	..	..	..	1	..	1	1	..	..	..	..	..	..
East Coolgardie	East Coolgardie	..	..	1	1	5	4	4	4	6	6	22	23	..	..
Do.	Bulong	..	..	..	1	..	1	1	1	..	..	..	..	..	..
Coolgardie	Coolgardie	..	..	2	2	4	3	3	4	2	3	2	..	..	..
Do.	Kunanalling	..	..	1	2	4	4	2	2	..	..	..	..	..	..
Yilgarn	..	..	..	247	241	82	98	2	4	3	2	4	3	..	..
Dundas	..	..	..	..	..	1	1	3	4	2	2	3	3	..	..
Phillips River	..	..	..	..	..	..	..	2	2	2	2	4	4	..	..
Collie	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Greenbushes	..	7	6	30	32	4	2	5	4	..	..	14	14	3	2
Gascoyne	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..
Outside Proclaimed Fields	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	..	10	9	561	440	259	267	63	68	40	41	133	126	3	2
Increase or Decrease for 1916 compared with 1915	..	—1		—121		+8		+5		+1		—7		—1	

* 1915, including three for coal and oil—7,794 acres. † 1916, including six for coal and oil—9,516 acres.

Last year the number of prospecting areas held was 763, the total acreage being 17,217 acres, which included 3 areas of 7,794 acres for coal and oil.

This year the number held is 573, of a total acreage of 17,520 acres, including six areas of 9,516 acres for coal and oil.

TABLE 19.

Miners' Rights issued during 1915 and 1916.

Place of Issue.	Miners' Rights.		Place of Issue.	Miners' Rights.	
	1915.	1916.		1915.	1916.
Albany	7	12	Mount Magnet	183	155
Boulder	20	48	Mount Morgans	29	36
Bridgetown	14	..	Mulline	15	8
Broad Arrow	65	115	Nannine	49	43
Broome	8	2	Narrogin	1	..
Bullfinch	32	28	Niagara	..	52
Bunbury	3	1	Norseman	74	52
Burtville	16	6	Northampton	17	42
Busselton	6	8	Northam	11	10
Carnarvon	23	10	Nullagine	56	41
Collie	10	5	Onslow	40	16
Coolgardie	428	206	Ora Banda	27	28
Cue	253	126	Payne's Find	25	16
Davyhurst	19	..	Peak Hill	53	14
Derby	17	5	Perth	262	164
Esperance	..	3	Port Hedland	4	30
Geraldton	15	3	Ravensthorpe	81	57
Greenbushes	129	100	Roebourne	97	74
Hall's Creek	16	27	Sandstone	139	86
Kalgoorlie	441	504	Southern Cross	192	119
Kanowna	66	51	Toodyay	1	..
Kookynie	52	..	Wagin	4	1
Lake Darlot	13	10	Westonia	456	285
Laverton	175	119	Wiluna	54	58
Lawlers	61	43	Wyndham	..	2
Leonora	100	97	Yalgoo	135	75
Linden	25	16	Yarri	14	7
Marble Bar	126	90	Yerilla	..	26
Marvel Loch	63	37	York	18	3
Meekatharra	146	123	Youanme	52	47
Menzies	136	121			
Mt. Egerton	5	..	Total	4,579	3,463

TABLE 20.

Number and Acreage of Miners' Homestead Leases in force on 31st December, 1915 and 1916.

Goldfield.	District.	1915.		1916.		Increase.		Decrease.	
		Leases.	Acreage.	Leases.	Acreage.	Leases.	Acreage.	Leases.	Acreage.
West Pilbara	..	..	..	..	..	..	..	..	..
Greenbushes	..	10	941	11	986	1	45	..	..
Pilbara	Marble Bar	5	71	5	71	..	..	..	..
	Nullagine	..	..	..	..				
Dundas	..	27	1,417	28	1,427	1	10	..	..
Broad Arrow	..	4	70	4	70	..	..	..	..
Yilgarn	..	14	1,061	17	1,121	3	60	..	..
Mt. Margaret	Mt. Morgans	3	140	2	120	..	..	1	560
	Mt. Malcolm	5	1,239	6	1,079				
	Mt. Margaret	19	868	18	488				
Murchison	Cue	7	1,287	8	1,297	3	35	..	..
	Day Dawn	10	145	11	165				
	Meekatharra	17	1,953	18	1,958				
	Mt. Magnet	4	281	4	281				
Yalgoo	..	2	680	2	680	..	..	..	..
Coolgardie	Coolgardie	29	3,439	28	3,872	..	433	1	..
	Kunanalling	2	520	2	520				
East Coolgardie	..	100	3,600	02	3,632	2	32	..	..
Phillips River	..	147	21,466	150	21,490	3	24	..	..
Peak Hill	..	4	170	3	70	..	..	1	100
North-East Coolgardie	Kanowna	19	842	19	842	..	..	..	..
North Coolgardie	Menzies	9	879	8	719	..	..	1	160
	Yerilla	1	10	1	10				
	Niagara	1	20	1	20				
	Ularring	1	20	1	20				
East Murchison	Lawlers	5	1,110	5	1,110	..	..	9	677
	Black Range	17	905	8	228				
	Wiluna	4	69	4	69				
	Total	466	43,203	466	42,345	13	639	13	1,497

As compared with the year 1915, the number of leases is the same but the area held shows a decrease of 858 acres.

Part IV.—MEN EMPLOYED.

Table 21.

Average Number of Men engaged in Mining during 1915 and 1916.

Goldfield.	District.	Reef or Lode.		Alluvial.		Total.	
		1915.	1916.	1915.	1916.	1915.	1916.
1. Kimberley	..	..	..	10	12	10	12
2. Pilbara	Marble Bar	80	56	16	8	96	64
	Nullagine	56	76	24	18	80	94
3. West Pilbara	..	20	13	13	10	33	23
4. Ashburton	..	2	3	4	4	6	7
5. Gascoyne	..	1	2	3	4	4	6
6. Peak Hill	..	20	20	3	3	23	23
7. East Murchison	Lawlers	117	144	6	1	123	145
	Wiluna	114	123	..	..	114	123
	Black Range	491	271	3	..	494	271
8. Murchison	Cue	119	112	7	7	126	119
	Meekatharra	727	534	23	11	750	545
	Day Dawn	267	224	15	14	282	238
	Mt. Magnet	203	214	14	9	217	223
9. Yalgoo	..	301	278	18	..	319	278
10. Mt. Margaret	Mt. Morgans	88	116	14	..	102	116
	Mt. Malcolm	539	488	14	5	553	493
	Mt. Margaret	440	343	14	7	454	350
11. North Coolgardie	Menzies	415	368	7	5	422	373
	Ularring	94	88	6	2	100	90
	Niagara	92	86	15	12	107	98
	Yerilla	173	174	17	9	190	183
12. Broad Arrow	..	243	236	38	46	281	282
13. North-East Coolgardie	Kanowna	151	131	22	21	173	152
	Kurnalpi	23	25	14	10	37	35
14. East Coolgardie	East Coolgardie	4,522	4,022	4	14	4,526	4,036
	Bulong	66	39	6	6	72	45
15. Coolgardie	Coolgardie	316	218	9	13	325	231
	Kunanalling	95	79	3	10	98	89
16. Yilgarn	..	940	847	..	..	940	847
17. Dundas	..	226	196	..	..	226	196
18. Phillips River	..	37	37	..	..	37	37
State generally	..	3	..	..	..	3	..
Total—Gold Mining	..	10,981	9,563	342	261	11,323	9,824
Minerals other than Gold.							
Tin	Greenbushes	117	154	*15	*4	132	158
	Marble Bar	7	13	*49	*64	56	77
Copper	West Pilbara	13	41	..	..	13	41
	Ashburton	12	..	..	..	12	..
	Phillips River	75	72	..	..	75	72
	Peak Hill	34	..	..	..	34	..
	Meekatharra	2	..	..	..	2	..
	Yalgoo	2	..	..	..	2	
	State generally	6	..	..	..	6	..
Pyritic Ore	Mt. Morgans	25	20	..	..	25	20
Lead Ore	Northampton	62	174	..	..	62	174
	Ashburton	8	6	..	..	8	6
	State generally	..	64	..	..	..	64
Coal	Collie River	498	458	..	..	498	458
Graphite	State generally	..	6	..	..	..	6
Magnesite	Bulong	5	3	..	..	5	3
	Total—Other Minerals	866	1,011	64	68	930	1,079
	Grand Total ..	11,847	10,574	406	329	12,253	10,903

*Classified elsewhere as employed at mines.

TABLE 22.

Average Number of Men employed at Mines during 1916.

Mineral.	Above Ground.	Under Ground.	Total.	Percentage of total men employed.	Increase or decrease compared with 1915.
Coal	102	356	458	4·30	— 40
Copper	54	59	113	1·06	— 31
Gold	4,279	5,284	9,563	89·86	— 1,418
Lead	112	132	244	2·29	+ 174
Pyritic Ore	6	14	20	·19	— 5
Tin	*231	4	235	2·21	+ 47
Magnesite	3	..	3	·03	— 2
Graphite	3	3	6	·06	+ 6
Total	4,790	5,852	10,642	100·00	— 1,269

*As the tin obtained is principally "stream tin," the average number of alluvial workers has been, in this case, included in the heading "Above ground."

The above table deals with men working their own mines, or employed on wages, and is compiled from returns furnished to the Department by mine-owners.

TABLE 23.

Average Number of Men employed at Gold Mines during 1916, classified according to the several Goldfields and the proportion of Men employed in each Goldfield.

Goldfield	Above Ground.	Under Ground.	Total.	Increase or Decrease compared with 1915.	Percentage of total men employed.	
					1915.	1916.
1. Kimberley	...	...	...	...	...	...
2. Pilbara	73	59	132	— 4	1·24	1·38
3. West Pilbara	7	6	13	— 7	·18	·14
4. Ashburton	1	2	3	+ 1	·02	·03
5. Gascoyne	2	...	2	+ 1	·01	·02
6. Peak Hill	10	10	20	...	·18	·21
7. East Murchison	243	295	538	— 184	6·57	5·63
8. Murchison	497	587	1,084	— 232	11·98	11·33
9. Yalgoo...	135	143	278	— 23	2·74	2·91
10. Mt. Margaret	437	510	947	— 120	9·72	9·90
11. North Coolgardie	301	415	716	— 58	7·05	7·49
12. Broad Arrow	92	144	236	— 7	2·21	2·47
13. North-East Coolgardie ...	69	87	156	— 18	1·59	1·63
14. East Coolgardie	1,790	2,271	4,061	— 527	41·78	42·46
15. Coolgardie	175	122	297	— 114	3·74	3·10
16. Yilgarn	347	500	847	— 93	8·56	8·86
17. Dundas	85	111	196	— 30	2·06	2·05
18. Phillips River	15	22	37	...	·34	·39
State generally	...	...	...	— 3	·03	...
Total	4,279	5,284	9,563	— 1,418	100·00	100·00

TABLE 24.

Alluvial Gold Workers.

Goldfield.	1915.	1916.	Increase or decrease compared with 1915.
1. Kimberley	10	12	+ 2
2. Pilbara	40	26	— 14
3. West Pilbara	13	10	— 3
4. Ashburton	4	4	...
5. Gascoyne	3	4	+ 1
6. Peak Hill	3	3	...
7. East Murchison	9	1	— 8
8. Murchison	59	41	— 18
9. Yalgoo	18	...	— 18
10. Mt. Margaret	42	12	— 30
11. North Coolgardie...	45	28	— 17
12. Broad Arrow	38	46	+ 8
13. North-East Coolgardie	36	31	— 5
14. East Coolgardie	10	20	+ 10
15. Coolgardie	12	23	+ 11
16. Yilgarn	...	...	...
17. Dundas	...	...	...
18. Phillips River	...	...	...
Total	342	261	— 81

TABLE 25.

RATE OF WAGES IN THE MINING INDUSTRY.

Table showing Wages payable to Workers in Gold-mining and Copper-mining Industries under various Awards of the Court of Arbitration and Industrial Agreements up to 31st December, 1916.

Locality in which Award or Agreement has effect.	Date of Award or Agreement.	Term.	Miner (hand labour) in shafts.	Miner (hand labour) in rises.	Miner (hand labour) in winzes.	Miner (hand labour) in all other places.	Millman in Charge.	Roasterman in Charge.	Slimes Charger.	Slimes Platman (off-sider).	Ropeman.	Men on Cracker.	Men in Dams.	Rock Drill Men, and Chuckmen in Shafts.	Rock Drill Men, and Chuckmen in rises.	Rock Drill Men, and Chuckmen elsewhere.	Rock Drill Men in winzes.	Miners (Hammer and Drill men).	Miners (wet ground, extra allowance) per shift.	Bracemen and Platmen.	Skipmen.	Mullockers and Shovellers.	Shoveller.	Truckers.	Men working in Cyanide Vats and Filterpress Men.	Man in Charge of Dam.	Timbermen.	Surface Labourers.	Boiler Cleaners.	Horse Drivers (including looking after horses).	Drill and Tool Sharpeners.	Mechanics' Labourers.	Oilers and Greasers.	Riggers.	Firemen.	Pipe Fitters (underground).	Pitmen.	Fitters, Turners, and Blacksmiths.	Pattern-makers.	Planers, Slotters, and Shapers.	Radial Drillers.	Electricians.	Motor Attendants.	Linesmen.	Engine-driver.				Hours of Work per week.	
																																													Surface Winding Engines.	All other classes of Engines.	Overtime. Week Day.		Men on Surface (one shift).	Shiftmen and underground workers.
																																															Up to 4 hours.	After 4 hours.		
			s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.				
Abbotts (1)	27th February, 1903	29th January, 1903, to 29th July, 1904	..	..	..	..	..	..	..	..	..	..	..	15 6	15 0	14 4	..	13 6	0 10	13 0	..	12 4	..	12 4	13 0	..	14 4	11 10	13 6	12 10	14 9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(2)	19th November, 1904	29th July, 1904, to 31st January, 1906	..	..	..	..	..	..	..	..	..	..	..	15 0	14 6	13 10	..	13 0	0 10	12 6	..	11 10	..	11 10	12 6	..	13 10	11 4	13 0	12 4	14 3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
†(3)	30th August, 1910	30th August, 1910, to 30th August, 1911	..	..	..	..	..	..	..	..	..	..	..	15 4 15 0	14 10 14 6	14 2 13 10	..	13 4 13 0	.. 0 10	.. 12 6	..	12 6 11 10	..	12 6 11 10	13 6 12 6	..	15 0 13 10	12 6 11 4	13 0 ..	13 6 12 4	14 3 ..	12 6 12 4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
†(4)	31st May, 1916	31st May, 1916, to 30th May, 1919	15 0	14 6	14 2	13 10	15 0	15 0	15 0	13 4	14 6	13 6	13 6	15 10	15 4	14 8	15 0	..	1 2	13 6	..	¶13 0	..	¶13 0	13 6	..	15 0	12 6	15 0	13 6	15 0	13 0	..	..	..	..	15 0	..	..	..	..	..	..	..	..	..	..	..	48	47
Black Range (1)	4th July, 1905	1st August, 1905, to 1st August, 1906	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 4 12 10 12 4	1 3	12 4	..	11 4	..	11 4	12 4	..	14 0	10 10	12 6	11 10	13 4	..	..	..	..	..	13 0	..	..	..	..	..	..	..	..	..	..	..	48	47
(2)	13th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 6	14 6	..	..	..	..	..	..	..	..	..	48	..
(3)	17th May, 1907	1st June, 1907, to 31st May 1910	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 0 14 0 13 4	1 3	13 6	..	12 0	..	12 0	13 10	..	15 0	11 8	14 0	12 8	14 4	..	..	..	..	..	15 0	..	..	..	..	..	..	..	..	..	..	..	48	47
(4)	20th May, 1908	20th May, 1908, to 31st May, 1910	..	..	..	..	..	..	..	..	..	..	..	15 4	14 10	14 2	..	..	1 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47
(5)	14th August, 1908	8th August, 1908, to 31st May, 1910	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 8	15 0	1¼	1½	47 and 48	..
Broad Arrow, Paddington to Kanowna (1)	19th December, 1904	19th December, 1904, to 19th June, 1906	..	..	..	..	..	..	..	..	..	..	..	14 4	13 10	13 4	..	11 8	1 8	11 8	..	10 6	..	10 6	11 8	..	13 4	10 0	11 10	11 0	12 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(2)	13th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 0	14 0	..	..	..	..	..	..	..	..	..	48	..
Bullfinch *(1)	28th July, 1911	28th July, 1911, to 2nd August, 1911	..	..	..	..	..	..	..	..	..	..	..	14 4	13 10	13 4	..	12 8 11 8	..	11 8	..	11 0	..	11 0	..	..	13 4	10 0	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
Bulong (1)	13th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 0	14 0	..	..	..	..	..	..	..	..	..	48	..
(2)	13th July, 1905	1st August, 1905, to 31st December, 1905	..	..	..	..	..	..	..	..	..	..	..	14 4	13 10	13 4	..	11 8	..	11 8	..	10 6	..	10 6	11 8	..	13 4	10 0	..	..	..	..	10 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
Burtville *	4th September, 1909	6th September, 1909, to 7th March, 1911	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 4	1 8	13 4	..	13 4	..	13 4	13 4	..	..	13 4	..	14 4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47	47
Comet Vale ‖	14th March, 1912	14th March, 1912, to 14th March, 1913	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14 10	14 2	1¼	1½	47	..
Cue–Nannine (1)	27th February, 1903	29th January, 1903, to 29th July, 1904	..	..	..	..	..	..	..	..	..	..	..	14 6	14 0	13 4	..	12 6	0 10	12 0	..	11 4	..	11 4	12 0	..	13 4	10 10	12 6	11 10	13 9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
*(2)	17th October, 1904	29th July, 1904, to 30th January, 1906	..	..	..	..	..	..	..	..	..	..	..	14 6	14 0	13 4	..	12 6	0 10	12 0	..	11 4	..	11 4	12 0	..	13 4	10 10	12 6	11 10	13 9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
†(3)	18 th December, 1908	1st January, 1909, to 1st January, 1910	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 10 and 14 10	14 2	1¼	1½	47 and 48	..
Dundas (1)	29th June, 1903	29th June, 1903, to 1st March, 1904	..	..	..	..	..	..	..	..	..	..	..	14 4	13 10	13 4	..	11 8	1 8	11 8	..	10 8	..	10 8	11 8	..	13 4	10 0	11 8	11 0	12 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46	46
(2)	16th December, 1904	16th December, 1904, to 16th June, 1906	..	..	..	..	..	..	..	..	..	..	..	15 0	14 6	14 0	..	12 4 13 10 12 4	1 8	12 4	..	11 4	..	11 4	12 4	..	14 0	10 10	12 6	11 10	13 4	11 10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(3)	13th July, 1905	1st August, 1905, to 16th June, 1906	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14 0	13 0	1¼	1½	48	..
(4)	13th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 6	14 6	..	..	..	..	..	..	..	..	..	48	..
(5)	16th June, 1910	15th June, 1910, to 15th June, 1913	..	..	..	..	..	..	..	..	..	..	..	14 8	14 2	13 8	..	13 0 12 6 12 0	1 8	12 0	13 8	11 2	..	11 2	12 0	..	13 8	10 8	12 2	11 8	13 0	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(6)	16th June, 1910	16th June, 1910, to 16th June, 1911	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14 4	13 8	1¼	1½	47 and 48	..
*(7)	11th December, 1913	11th December, 1913, to 10th December, 1916	..	..	..	..	..	..	..	..	..	..	..	14 8	14 2	13 8	..	13 0 12 6 12 0	..	12 0	13 8	11 4	..	11 4	12 0	..	13 8	10 9	12 2	11 9	13 4	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
Gindalbie	10th November, 1908	16th November, 1908, to 16th November, 1911	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14 10	14 2	1¼	1½	47 and 48	..
Higginsville	5th October, 1906	1st November, 1906, to 1st May, 1908	..	..	..	..	..	..	..	..	..	..	..	15 0	14 6	14 0	..	13 4 12 10 12 4	1 8	12 4	..	11 4	..	11 4	12 4	..	14 0	10 10	12 6	11 10	13 4	11 10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
Kalgoorlie (1)	2nd September, 1902	2nd September, 1902, to 2nd March, 1904	..	..	..	..	..	..	..	..	..	..	..	14 4	13 10	13 4	..	11 8	..	11 8	..	10 6	..	10 6	11 8	..	13 4	10 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	48
*(2)	5th March, 1904	1st March, 1904, to 1st September, 1905	..	..	..	..	..	..	..	..	..	..	..	14 4	13 10	13 4	..	11 8	..	11 8	..	10 6	..	10 6	11 8	..	13 4	10 0	..	..	..	..	10 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
*(3)	5th March, 1904	1st March, 1904, to 1st September, 1905	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
*(4)	5th March, 1904	1st March, 1904, to 1st September, 1905	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
*(5)	5th March, 1904	1st March, 1904, to 1st September, 1905	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
(6)	13th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 0	14 0	..	..	..	..	..	..	..	..	..	48	..
*(7)	18th November, 1905	1st September, 1905, to 1st January, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
(8)	9th December, 1905	1st September, 1905, to 1st January, 1907	..	..	..	..	..	..	..	..	..	..	..	14 4	13 10	13 4	..	11 8	..	11 8	..	10 6	..	10 6	11 8	..	13 4	10 0	..	..	..	..	10 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
*(9)	7th December, 1905	1st September, 1905, to 1st January, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10 0 10 6 11 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
*(10)	31st August, 1907	31st August, 1907, to 30th June, 1909	..	..	..	..	..	..	..	..	..	..	..	14 4	13 10	13 4	..	11 8	..	11 8	..	11 0	..	11 0	..	..	13 4	10 0	..	..	..	..	10 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
*(11)	31st August, 1907	31st August, 1907, to 30th June, 1909	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
*(12)	31st August, 1907	31st August, 1907, to 30th June, 1909	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
*(13)	31st August, 1907	31st August, 1907, to 30th June, 1909	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10 0 10 6 11 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
*(14)	10th March, 1910	10th March, 1910, to 30th September, 1912	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 0 and 14 0	13 4	..	..	47 and 48	..
*(15)	10th March, 1910	10th March, 1910, to 30th September, 1912	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
*(16)	10th March, 1910	10th March, 1910, to 30th September, 1912	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
*(17)	10th March, 1910	10th March, 1910, to 30th September, 1912	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10 0 to 15 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
*(18)	10th March, 1910	10th March, 1910, to 30th September, 1912	..	..	..	..	..	..	..	..	..	..	..	14 4	13 10	13 4	..	11 8	..	11 8	..	11 0	..	11 0	..	..	13 4	10 0	..	..	..	..	10 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
Kalgoorlie (Engineers) ‖(19)	14th December, 1911	14th December, 1911, to 30th September, 1912	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 0	16 0	..	..	..	..	..	..	..	1	1½	48	..
*(20)	7th August, 1913	16th April, 1913, to 16th April, 1916	..	..	..	..	..	..	..	..	..	..	..	14 4	13 10	13 4	..	11 8	..	11 8	..	11 2	..	11 2	..	..	13 4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
*(21)	7th August, 1913	16th April, 1913, to 16th April, 1916	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	10 9	..	..	..	10 9 to 15 0	10 9	..	12 0	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
*(22)	8th November, 1913	16th April, 1913, to 16th April, 1916	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 0 and 14 0	13 4	..	..	47 and 48	..
*(23)	22nd May, 1914	22nd May, 1914, to 16th April, 1916	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 0	16 0	14 0	13 4	..	..	..	..	..	..	..	..	..
*(24)	25th March, 1914	25th March, 1914, to 16th April, 1916	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 0	11 8	13 4	..	..	..	..	..	..
Kanowna (For Miners' rates *see* "Broad Arrow," etc.)	10th November, 1908	16th November, 1908, to 16th November, 1911	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14 0	13 4	1¼	1½	47 and 48	..
Kununalling	21st February, 1910	21st February, 1910, to 30th September, 1912	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14 10	14 2	1¼	1½	47 and 48	..
Lawlers and Mt. Sir Samuel (1)	10th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	13 4	12 10	12 4	..	12 8 12 4 12 0	1 3	12 0	12 0	11 4	..	11 4	11 8	..	13 0	10 10	12 0	11 10	13 4	11 0	11 0	11 8	11 8	11 0	12 6	..	..	..	..	..	..	..	..	..	..	..	48	47
(2)	13th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 6	14 6	..	..	..	..	..	..	..	..	..	48	..
Leonora, Kookynie, Laverton, etc. (1)	28th February, 1903	28th February, 1903, to 28th August, 1904	..	..	..	..	..	..	..	..	..	..	..	16 0	15 6	15 0	..	13 4	..	13 4	15 0	11 8	..	11 8	13 4	..	15 0	11 8	15 0	12 8	15 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(2)	28th February, 1903	28th February, 1903, to 28th August, 1904	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17 0	15 6	1¼	1½	47	..
(3)	16th December, 1904	29th August, 1904, to 28th February, 1906	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 9	14 6	1¼	1½	47	..
(4)	19th December, 1904	29th August, 1904, to 28th February, 1906	..	..	..	..	..	..	..	..	..	..	..	15 0	14 6	14 0	..	12 4	1 8	12 4	14 0	11 6	..	11 6	12 4	..	14 0	11 0	12 6	12 0	13 4	12 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(5)	13th July, 1905	1st August, 1905, to 28th February, 1906	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
(6)	13th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 0	14 0	..	..	..	..	..	..	..	..	..	48	..
†(7) (*a*)	19th January, 1909	15th January, 1909, to 1st January, 1910	..	..	..	..	..	..	..	..	..	..	..	15 0	14 6	14 0	..	12 4	1 8	12 4	14 0	11 6	..	11 6	12 4	..	14 0	11 0	12 6	12 0	13 4	12 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(*b*)														14 8	14 2	13 8		12 0	1 8	12 0	13 8	11 2		11 2	12 0		13 8	10 8	12 2	11 8	13 0	11 8																		
†(8) (*a*)	19th January, 1909	15th January, 1909, to 1st January, 1910	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14 8	14 0	1¼	1½	48 and 47	..
(*b*)																																														14 4	13 8				
Marvel Loch (1)	27th January, 1910	1st February, 1910, to 1st February, 1911	..	..	..	..	..	..	..	..	..	..	..	13 6	13 0	12 6	..	10 1	1 8	10 10	..	10 10	..	10 10	10 10	..	12 0	10 6	..	11 6	12 6	..	..	..	10 6	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(2)	21st October, 1912	21st October, 1912, to 31st May, 1914	..	..	..	..	..	..	..	..	..	..	..	14 0	13 6	13 0	..	12 6 and 11 6	1 8	11 6	..	11 0	..	11 0	11 4	..	13 0	10 8	..	11 0	12 6	11 0	..	..	11 6	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
Meekatharra (*see* "Abbotts")																																																		
Menzies (1)	28th February, 1903	28th February, 1903, to 28th August, 1904	..	..	..	..	..	..	..	..	..	..	..	15 2	14 8	14 2	..	12 6	1 8	12 6	..	11 4	..	11 4	12 6	..	14 2	10 10	..	..	14 2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(2)	28th February, 1903	28th February, 1903, to 28th August, 1904	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16 0	14 6	1¼	1½	47	..
(3)	16th December, 1904	29th August, 1904, to 28th February, 1906	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 5	14 0	1¼	1½	47	..
(4)	19th December, 1904	29th August, 1904, to 28th February, 1906	..	..	..	..	..	..	..	..	..	..	..	14 9	14 3	13 9	..	12 0	1 8	12 0	..	11 0	..	11 0	12 0	..	13 9	10 6	12 0	11 10	13 0	11 6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(5)	13th July, 1905	1st August, 1905, to 28th February, 1906	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
(6)	13th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 0	14 0	..	..	..	..	..	..	..	..	..	48	..
Mt. Magnet †(1)	18th December, 1908	1st January, 1909, to 1st January, 1910	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14 0	13 4	1¼	1½	47 and 48	..
† (2)	28th November, 1909	17th November, 1909, to 16th November, 1910	..	..	..	..	..	..	..	..	..	..	..	14 6	14 0	13 4	..	12 6	0 10	12 0	..	11 4	..	11 4	12 0	..	..	10 10	12 6	11 10	13 9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
Mt. Morgans *(1)	17th August, 1903	16th July, 1903, to 28th August, 1904	..	..	..	..	..	..	..	..	..	..	..	16 0	15 6	15 0	..	13 4	1 8	13 4	15 0	11 8	..	11 8	13 4	..	15 0	11 8	15 0	12 8	15 0	13 4	..	13 4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
*(2)	16th December, 1904	29th August, 1904, to 28th February, 1906	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 9	14 6	1¼	1½	47	..
(3)	19th December, 1904	29th August, 1904, to 28th February, 1906	..	..	..	..	..	..	..	..	..	..	..	15 0	14 6	14 0	..	12 4	1 8	12 4	14 0	11 6	..	11 6	12 4	..	14 0	11 0	12 6	12 0	13 4	12 0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(4)	13th July, 1905	1st August, 1905, to 28th February, 1906	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	48	..
(5)	13th July, 1905	1st August, 1905, to 1st February; 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 0	14 0	..	..	..	..	..	..	..	..	..	48	..
†(6)	19th January, 1909	15th January, 1909, to 1st January, 1910	..	..	..	..	..	..	..	..	..	..	..	14 8	14 2	13 8	..	12 0	1 8	12 0	13 8	11 2	..	11 2	12 0	..	13 8	10 8	12 2	11 8	13 0	11 8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
†(7)	19th January, 1909	15th January, 1909, to 1st January, 1910	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14 4	13 8	1¼	1½	47 and 48	..
Northampton †(1)	12th June, 1914; Amendment 10th Oct., 1916	1st June, 1914, to 1st June, 1917	..	..	..	..	..	..	..	..	..	..	..	13 7	13 1	12 5	..	..	..	12 5	..	..	11 3	11 3	..	11 9	14 0	10 9	13 1	12 0	13 5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47 and 48	47
Norseman (*see* "Dundas.")																																																		
Nullagine *	16th January, 1905	1st February, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14 2	1 8	14 2 and 13 4	..	..	..	13 4	14 2	..	16 8	13 4	..	..	16 8	..	..	..	..	..	..	..	..	..	..	..	..	..	‡16 8	‡15 0	..	..	44	44
Peak Hill (1)	27th February, 1903	29th January, 1903, to 29th July, 1904	..	..	..	..	..	..	..	..	..	..	..	16 6	16 0	15 4	..	14 6	0 10	14 0	..	13 0	..	13 4	14 0	..	15 4	12 10	14 6	13 10	15 9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(2)	19th November, 1904	29th July, 1904, to 31st January, 1906	..	..	..	..	..	..	..	..	..	..	..	15 6	15 0	14 4	..	13 6	0 10	13 0	..	12 0	..	12 4	13 0	..	14 4	11 10	13 6	12 10	14 9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
(3)	6th December, 1906	1st October, 1906, to 1st October, 1909	..	..	..	..	..	..	..	..	..	..	..	15 0	14 6	13 10	..	13 0	1 3	12 6	..	11 10	..	11 10	12 6	..	13 10	11 4	13 0	12 4	14 3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
Southern Cross (1)	13th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12 0	13 0	..	..	..	..	..	..	..	..	..	48	..
Whim Creek (Copper)	14th August, 1912	14th August, 1912, to 14th June, 1913	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15 0 14 2§ 13 4	1 8	13 4	..	13 4	..	13 4	..	..	15 0	13 4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wiluna (1)	13th July, 1905	1st August, 1905, to 1st February, 1907	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13 6	14 6	..	..	..	..	..	..	..	..	..	48	..
(2)	6th December, 1908	1st January, 1907, to 1st January, 1910	..	..	..	..	..	..	..	..	..	..	..	15 6	15 0	14 4	..	13 6	1 3	13 0	13 0	12 4	..	12 4	13 0	..	14 4	11 10	13 6	12 10	14 9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	47
Youanmi	22nd July, 1912	22nd July, 1912, to 7th May, 1915	..	..	..	..	..	..	..	..	..	..	..	15 4	14 10§	14 2	..	15 0 14 0§ 13 4	1 3	13 6	..	12 8	..	12 8	13 10	..	15 0	11 8	14 0	12 8	14 4	13 4	..	..	13 4	..	15 0	..	..	..	..	..	..	..	..	..	..	..	48	¶ 47

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* Industrial Agreement. † Award continues in operation until amended or rescinded by Court. ‡ Hours of labour for engine-drivers and battery feeders agreed to at 47 per week. § Rises in winzes. ‖ Award and Agreement. ¶ Underground only.

Part V.—ACCIDENTS.

Table No. 26.

Men employed in Mines killed and injured in Mining Accidents during 1915 and 1916.

A.—*According to Locality of Accident.*

Goldfield.	Killed.		Injured.		Total killed and injured.	
	1915	1916.	1915.	1916.	1915.	1916.
1. Kimberley	..	..	..	..	..	..
2. Pilbara	..	..	..	..	..	..
3. W. Pilbara	..	..	..	..	..	..
4. Ashburton	1	..	..	..	1	..
5. Gascoyne	..	..	..	..	..	..
6. Peak Hill	..	..	..	..	..	..
7. E. Murchison	3	4	25	12	28	16
8. Murchison	2	3	61	32	63	35
9. Yalgoo	..	..	3	3	3	3
10. Mt. Margaret	4	2	82	73	86	75
11. N. Coolgardie	2	1	3	10	5	11
12. N.E. Coolgardie	1	..	..	1	1	1
13. Broad Arrow	1	..	4	4	5	4
14. E. Coolgardie	12	10	621	612	633	622
15. Coolgardie	1	..	7	..	8	..
16. Yilgarn	3	1	29	7	32	8
17. Dundas	1	..	2	1	3	1
18. Phillips River	..	..	3	3	3	3
Mining Districts—						
Northampton	..	..	..	1	..	1
Yandanooka	..	..	..	..	..	..
Greenbushes	1	..	..	..	1	..
Collie	2	..	81	86	83	86
Swan	..	1	2	2	2	3
Kendenup	..	..	..	..	..	..
Total	34	22	923	847	957	869

From the above table it will be seen that the total number of fatal accidents for the year 1916 was 12 less than for 1915. The number of injured shows a decrease of 76 compared with the preceding year. Details of these accidents will be found in the report of the State Mining Engineer, published as Division II. to this report.

B.—*According to Causes of Accidents.*

	1915.		1916.		Comparison with 1915.	
	Fatal.	Serious.	Fatal.	Serious.	Fatal.	Serious.
1. Explosives	6	16	..	15	— 6	— 1
2. Falls of Ground	16	108	11	91	— 5	— 17
3. In Shafts	5	24	1	25	— 3	+ 1
4. Miscellaneous Underground	4	532	6	500	+ 2	— 32
5. Surface	3	243	4	216	+ 1	— 27
Totals	34	923	22	847	— 12	— 76

Of the fatal accidents, 21 occurred in gold mines and one in a quarry. The death-rate per 1,000 men employed on gold mines was 2.11 as against 2.74 in 1915.

Table No. 27.

Deaths of Persons employed at Mines from Accidents during 1915 and 1916.

	1915.						1916.					
	Number of Persons killed.			Death Rate per 1,000 Men employed.			Number of Persons killed.			Death Rate per 1,000 Men employed.		
	Above Ground.	Under Ground.	Total.	Above Ground.	Under Ground.	Total.	Above Ground.	Under Ground.	Total.	Above Ground.	Under Ground.	Total.
Coal Mines	..	2	2	..	5·33	4·02	..	..	..	..	..	..
Men employed ...	(123)	(375)	(498)	..	..	..	(102)	(356)	(458)	..	..	..
Gold Mines	3	28	31	·57	4·62	2·74	4	17	21	·88	3·22	2·14
Men employed ...	(5,266)	(6,057)	(11,323)	..	..	..	(4,540)	(5,284)	(9,824)	..	..	..
Other Mines	..	1	1	..	6·41	2·31	..	..	..	..	..	..
Men employed ...	(276)	(156)	(432)	..	..	..	(409)	(212)	(621)	..	..	..
Total for all Mines ...	3	31	34	·53	4·71	2·77	4	17	21	·79	2·90	1·93
Total number of men employed	(5,665)	(6,588)	(12,253)	..	..	..	(5,051)	(5,852)	(10,903)	..	..	..

Table No. 28.

Deaths of Persons employed at Quarries from Accidents during 1916.

Mining District.	Number of Persons employed.			Number of Persons killed.			Death Rate per 1,000 men employed.		
	Above Ground.	Under Ground.	Total.	Above Ground.	Under Ground.	Total.	Above Ground.	Under Ground.	Total.
Swan	25	64	89	...	1	1	...	96·63	92 24
Roelands	38	46	84	...	...	...	...	...	...
Totals	63	110	173	...	1	1	...	9·09	5·78

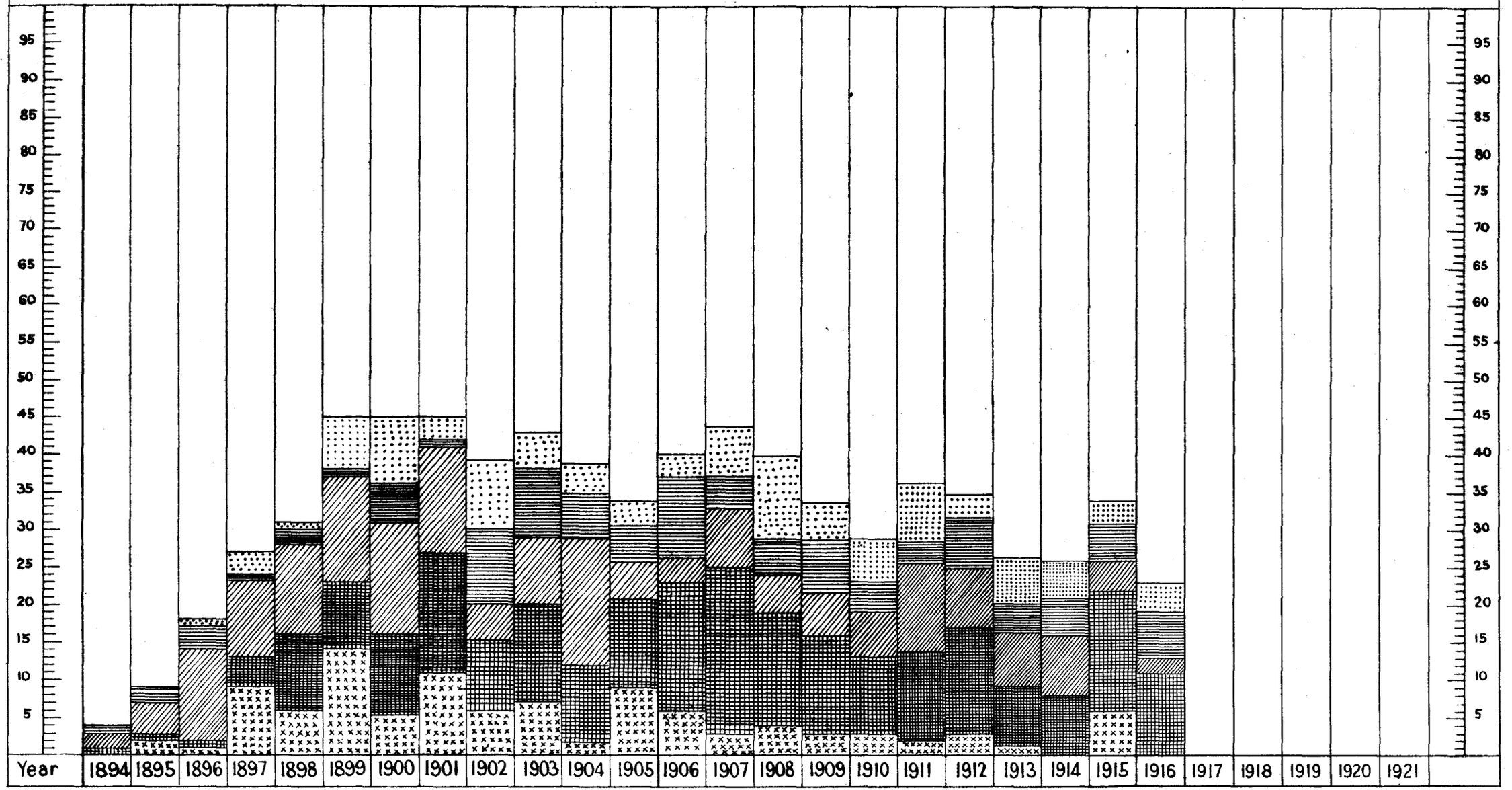
Table No. 29.

Deaths from Accidents of persons employed in Gold Mines during 1916, and the Death Rate per 1,000 men employed, and per 1,000 tons of Gold Ore raised during 1915 and 1916 (Number of men taken as in Table No. 23, not including Alluvial Gold Workers).

Goldfield.	Number of Deaths.			Death rate per 1,000 Men employed.				Number of Deaths per 1,000 tons of Gold Ore raised.	
	1916.			1916.			1915.		
	Above Ground.	Under Ground.	Total.	Above Ground.	Under Ground.	Total.	Total.	1916.	1915.
1. Kimberley	..	..	..	..	..	..	..	..	..
2. Pilbara	..	..	..	..	..	..	..	..	..
3. West Pilbara	..	..	..	..	..	..	..	..	..
4. Ashburton	..	..	..	..	..	..	..	..	..
5. Gascoyne	..	..	..	..	..	..	..	..	..
6. Peak Hill	..	..	..	..	..	..	..	..	..
7. East Murchison	..	3	3	..	10·17	5·58	4·16	·043	·029
8. Yalgoo	..	..	..	..	..	..	..	..	..
9. Mt. Margaret	..	2	2	..	3·92	2·11	3·75	·008	·016
10. North Coolgardie	..	1	1	..	2·41	1·40	2·58	·015	·026
11. North-East Coolgardie ..	..	..	..	..	..	..	5·74	..	·066
12. Broad Arrow	..	..	..	..	..	..	4·12	..	·017
13. East Coolgardie	2	9	11	1·12	3·96	2·71	2·62	·008	·007
14. Coolgardie	..	..	..	..	..	..	2·43	..	·033
15. Murchison	..	3	3	..	5·11	2·77	1·52	·022	·011
16. Yilgarn	.. 1	..	1	2·88	..	1·18	3·19	·005	·015
17. Dundas	..	..	..	..	..	..	4·42	..	·023
18. Phillips River	..	..	..	..	..	..	..	..	..
Total	3	18	21	·70	3·41	2·11	2·74	·010	·011

The number of Deaths per 1,000 men employed shows a decrease from 2·74 in 1915, to 2·11 in 1916, and that per 1,000 tons of Gold Ore raised also shows a decrease, being ·010 as against ·011 for the preceding year.

DIAGRAM SHEWING THE NUMBER OF DEATHS FROM ACCIDENTS ARRANGED IN FIVE CLASSES, IN THE MINES OF WESTERN AUSTRALIA DURING THE YEARS 1894 AND ONWARDS.



1916

PART VI.—STATE AID TO MINING.

The number of State Batteries existing at the close of the year was 32, of which two were leased. A 5-head battery was in course of erection at Warriedar, and will be available to the public early in 1917. The old 10-head battery at Menzies was dismantled and portion of the plant re-erected at Warriedar.

From inception to end of 1916 gold and tin to the value of £4,736,059.41 have been recovered at the State plants.

1,114,459.19 tons of gold ore were treated and produced £3,948,741.75 worth of gold by amalgamation, £559,601.59 worth by cyanidation, £132,235.98 from slimes treatment, £7,875.42 from residues; and 70,969.75 tons of tin ore produced tin to the value of £87,384.70, and in addition a sum of £219.97 was recovered from residues.

During the year the gold ore treated was 47,304.25 tons for 31,734.73 ozs.

The working expenditure for all plants during the year totalled £51,178 3s. 2d., and the revenue £45,258 8s. 3d., which, after including £269 7s. 5d. for additions and equipments (paid from revenue), shows a loss of £6,189 2s. 4d. on the year's operations.

The capital expenditure from the inception of the scheme was £364,515 1s.; £91,981 1s. 8d. being paid from Revenue, and £272,533 19s. 4d. from Loan. The cost of administration for the year was £3,281 8s. 7d., as against £3,919 10s. 3d. for 1915.

The working expenditure from inception to the 31st December, 1916, exceeds the receipts by £65,572 11s. 10d.

GEOLOGICAL SURVEY.

The Geological Survey Division carried on its work along the usual lines owing to the fact that the detailed geological surveys of mining and other fields, as well as the other investigations arising therefrom, necessitated the continuance to a certain extent of the programme previously initiated. The Staff (both in the office and the field) have been directing their energies to the investigation of those raw materials, the exploitation of which are of special importance under the pressure of present conditions.

The work of the year embraces a detailed survey of the neighbourhood of Westonia, and the adjoining portion of the northern portion of the Yilgarn Goldfield. A survey of the mining centres of Comet Vale and Goongarrie on the North Coolgardie Goldfield, about which there is no official geological account, has been inaugurated and is in progress.

A reconnaissance survey of the reputed mineral-bearing country in the immediate neighbourhood of the Warburton Range, S. Lat. 26, near the South Australian Border, was commenced, but unfortunately the time available for field work was curtailed owing to the hostility of the natives, in which the leader of the party, Mr. H. B. Talbot, and one of the camp hands, J. W. Johnson, were wounded, necessitating an immediate return to Laverton, where Johnson, the more seriously wounded, was placed under medical care.

The mining centre of Quinn's on the Murchison was examined in the light of the mining work done and the increased knowledge of the conditions governing the occurrence of gold, etc., since the original investigations in 1903.

Jasper Hill on the Murchison Field, 12 miles south-east of Cue, also received attention at the hands of the geological staff.

In conformity with the policy of geologically linking up known centres with outlying areas, work in the neighbourhood of Yerilla on the North Coolgardie Goldfield was duly put in hand and completed during the year.

A commencement has been made of examining the various mining centres on the Yalgoo Goldfield which, though one of the oldest in the State, is one about which little is officially known.

Good progress has been made with the investigations into the mineral and allied resources of the South-West Division, which have been in progress for some considerable time.

The time of the resident scientific officers has, as usual, been devoted to work arising out of the field investigations, etc.; under certain limitations they, amongst other things, determine and examine mineral and rock specimens; whenever necessary such are analysed and reported upon. In addition to this current routine work, the following researches have been initiated and prosecuted as opportunity offers—

Clays.—A study of the properties and ceramic value of the clays of the State, with a view to their utilisation in the manufacture of many clay products, hitherto imported from abroad.

Tantalum Ores.—A study of the composition and physical properties of the Tantalum-bearing minerals, which have such a wide distribution in the State.

Bismuth Assays.—In view of the present high value of bismuth ores and the continued export of these from the State, the present unsatisfactory methods of assay are being investigated with a view to their improvement.

The Gem and Ore-Bearing Pegmatites.—Gneisses and Aplites are being investigarded as opportunity offers, as are also the

Granites and Allied Acidic Rocks.

ASSISTANCE UNDER "THE MINING DEVELOPMENT ACT, 1902."

The following statement shows the sums advanced during the year 1916 under "The Mining Development Act":—

	£	s.	d.
Advanced in aid of mining work and equipment of mines with machinery	1,367	14	6
Advanced in aid of erection and equipment of crushing plants, including subsidies paid on stone crushed for the public ..	1,761	3	3
Boring	119	2	5
Providing means of transport ..	338	3	11
	£3,586	4	1

In addition to the above, amounts totalling £1,801 16s. 3d. were expended from Mining Development Vote on various matters for the assistance

of mining, such as water supply, subsidies to assist carting of ore long distances and subsidies for development work done below 100ft. level in small mines, and rebates to prospectors working low-grade mines.

Included in the amount set against "Advances in aid of erection and equipment of crushing plants, including subsidies paid on stone crushed for the public," is the sum of £626 19s. 3d., being the subsidies paid to owners of plants crushing for the public, the conditions being that they crush for the public at fixed rates; in most cases a further requirement being imposed as to purchasing or treating tailings. The ore crushed at such plants during the year amounted to 5,621 tons.

The receipts under the Mining Development Act, exclusive of interest payments, amounted to £5,857 5s. 11d., and include—

	£	s.	d.
Refunds of Advances ..	3,929	18	6
Sales of Securities ..	1,823	6	5
Miscellaneous Refunds ..	104	1	0

PART VII.—REMARKS ON THE GOLDFIELDS AND MINERAL DISTRICTS AND SUMMARIES OF THE WARDENS' AND OTHER OFFICERS' REPORTS.

ASHBURTON GOLDFIELD.

There was no output of gold during the year, gold mining being at a standstill.

The output of silver-lead ore was 67.83 tons, valued at £554; and in the preceding year 298.96 tons, valued at £4,429; a decrease in tonnage of 231.13 tons, and in value of £3,875.

Copper ore to the extent of 2.61 tons, valued at £27, was also produced, being a decrease in tonnage of 143.39 tons, and in value of £3,717 when compared with the previous year.

BROAD ARROW GOLDFIELD.

The output of gold was 22,216 fine ounces, and for the preceding year 22,290 fine ounces; a decrease of 74 fine ounces.

No new finds were reported, but a good deal of attention was given to old abandoned leases, and in some cases fairly satisfactory results were obtained.

In the immediate vicinity of the Broad Arrow townsite a few holdings are looking very promising. A number of fairly good parcels were raised at Paddington. At Black Flag mining is quiet, but at Bardoc there was a considerable revival.

At Waverley matters were quiet for many months, but the close of the year witnessed an improvement.

At Ora Banda the Associated Northern is still operating, but scarcity of water is a great drawback.

The outlook of the field is promising.

COLLIE COAL FIELD.

The output of coal for the year was 301,526 tons, and for the preceding year 286,666 tons; an increase of 14,860 tons.

The Co-operative Colliery Company carried out a series of bores for the purpose of proving the property, and the results have justified the expenditure incurred.

A considerable amount of boring with good results was also carried out on a prospecting area, and sinking is now in progress. With the exception of the Scottish Collieries, where operations were suspended on account of inflow of water, work was carried on as usual at all the mines.

The progress of the field has been satisfactory.

COOLGARDIE GOLDFIELD.

The output of gold for the year was 13,618 fine ounces, and for the preceding year 18,315 fine ounces; a decrease of 4,697 fine ounces.

The Bonnievale Centre continues quiet, there being only one or two mines, locally owned, working.

Burbanks is also in much the same position.

At Higginsville the Sons of Erin Mine has been working, and produced in addition to gold nearly £400 worth of scheelite.

In the Kunanalling District two good mines are being steadily developed.

At the various other centres there were no developments of note. In the immediate vicinity of Coolgardie a good deal of prospecting was carried out, but there is nothing to justify an optimistic opinion as to the future prospects of the field.

DUNDAS GOLDFIELD.

The output of gold for the year was 21,595 fine ounces, and for the preceding year, 23,884 fine ounces; a decrease of 2,289 fine ounces.

The mines in this field have been steadily worked, but nothing has transpired to justify any hope of much improvement.

EAST COOLGARDIE GOLDFIELD.

The output of gold was 579,344 fine ounces, and for the preceding year 670,788 fine ounces; a decrease of 91,444 fine ounces.

97.50 tons of magnesite, valued at £97, were raised in the Bulong District, and in the preceding year 601.50 tons, valued at £601.

The decrease in gold production is due in a large measure to a strike at the commencement of the year, and the scarcity of labour consequent on the large numbers of men who have enlisted.

The large mines have all continued working which, in face of the greatly increased cost of requisites and dearth of skilled labour, is very satisfactory.

At Golden Ridge and Mount Monger a good deal of prospecting has been undertaken.

At Bulong and Randells matters have been very quiet, and no find of any importance has been reported.

EAST MURCHISON GOLDFIELD.

The output of gold was 46,811 fine ounces, and for the preceding year 58,082 fine ounces; a decrease of 11,271 fine ounces.

Copper ore to the extent of 63.42 tons, valued at £1,311, was produced, and in the preceding year 10.93 tons, valued at £147.

The decrease in gold production is attributable to a falling off in returns from the centres of Barrambie, Hancocks, Montague, Nungarra, Youanmi, and particularly Sandstone, where three mines ceased producing, all in the Black Range District.

The districts of Lawlers and Wiluna both recorded increases, the former of 524 ounces, and the latter 7,725 ounces.

In the Lawlers District the principal producer was the Waroonga mine. New or additional plants have been erected on several shows, and a good many prospectors are out. In the Wiluna District the improvement is largely attributable to the facilities for treatment at the new State Battery.

The Black Range District has, it is regretted, been mostly on the down grade, but one or two small finds give hope for an improvement.

GASCOYNE GOLDFIELD.

The output of gold was 14 fine ounces, and in the preceding year 81 fine ounces; a decrease of 67 fine ounces.

The number of men working on this field is under 20, and there does not seem much likelihood of an early improvement.

GREENBUSHES MINERAL FIELD.

The output of black tin was 281.74 tons, valued at £27,319, and in the preceding year 247.33 tons, valued at £21,431; an increase in tonnage of 34.41 tons, and in value of £5,888.

The dredges have been fully worked, but little work has been done in the matter of lode mining. The field as a whole is fairly prosperous.

KIMBERLEY GOLDFIELD.

The output of gold was 162 fine ounces, and in the preceding year 144 fine ounces; an increase of 18 fine ounces. As in the immediate past the only work done on this field was by fossickers for alluvial, but towards the close of the year some experienced prospectors were directing their attention to searching for reefs or lodes, and it is hoped they will be successful.

MT. MARGARET GOLDFIELD.

The output of gold was 100,612 fine ounces, and in the preceding year 106,563 fine ounces; a decrease of 5,951 fine ounces. In addition 4,409.22 tons of pyritic ore, valued at £2,263, were raised, and in the preceding year 6,557.62 tons, valued at £2,368; a decrease in tonnage of 2,148.40 tons, and in value of £105.

The Mount Margaret District had a slight decrease, due to a falling off in the amount of dollied stone, one mine having produced a lot of rich specimens in the preceding year.

The Lancefield Mine has been producing steadily and others intermittently, but no new finds of note have been made.

In the Mount Morgans District there was again an increase in production. At the Australia United and Federation centres there has been a revival in prospecting with encouraging results. Work has been continued at the Mount Morven leases, and the results are encouraging. A good deal of work has also been done on the Westralia Mt. Morgans mine.

In the Mount Malcolm District there was a decrease. The Sons of Gwalia continues to be the chief producer, but a good deal of development work has been carried out throughout the district.

MURCHISON GOLDFIELD.

The output of gold was 84,423 fine ounces, and in the preceding year 108,050 fine ounces; a decrease of 23,627 fine ounces.

Twenty tons of wolfram, valued at £117, were also raised, but none in the preceding year.

In the Meekatharra District there was a large decrease, for which two mines were mainly responsible. Work on most of the big mines has continued steadily. At Garden Gully, Yaloginda, Quinns, and Nannine matters have been quiet. At Ruby Well, Holdens, and Gabanintha a fair amount of work was accomplished.

Nothing of note was reported from Gum Creek, Jillawarra, Chesterfield, Burnakurra, or Stake Well, although there was some activity in each centre.

In the Mount Magnet District there was a small increase, and a good many low grade properties were worked.

In the Cue District there was a slight decrease, but the Light of Asia Mine continued its consistent production. At Tuckabianna, Cuddingwarra, and Reedys a good deal of prospecting was carried out.

In the Day Dawn District there was a decrease attributable to the ceasing of crushing operations at the Great Fingall Mine for a period.

No development of note was recorded. Generally speaking conditions were very quiet throughout this field, but there is a feeling that they will improve after the war.

NORTHAMPTON AND YANDANOOKA MINERAL FIELDS.

No minerals were reported from Yandanooka. In the Northampton Field the output of lead ore was 34,578.34 tons, valued at £110,872, and in the preceding year 15,678.30 tons, valued at £29,396; an increase in tonnage of 18,900.04 tons, and in value of £81,476.

There has been a good deal of activity on this field, and a continuance of its improved output is anticipated.

NORTH COOLGARDIE GOLDFIELD.

The output of gold was 45,147 fine ounces, and in the preceding year 59,513 fine ounces; a decrease of 14,366 fine ounces.

In the Menzies District there was a decrease. The Sand Queen Mine at Comet Vale and the Menzies Consolidated at Woolgar were the principal producers.

At Goongarrie there has been quite a revival, and the "New Boddington" Mine is regarded as a very promising one.

At Mount Ida matters have been very quiet.

In the Ularring District there was an increase, but the only centre where there was much activity was Riverina, where mining is apparently on the up grade. In the Niagara and Yerilla Districts there was a good deal of prospecting, but no discoveries of note.

NORTH-EAST COOLGARDIE GOLDFIELD.

The output of gold was 6,678 fine ounces, and in the preceding year 10,861 fine ounces; a decrease of 4,183 fine ounces.

Mining generally has been very quiet, and neither in the Kanowna nor Kurnalpi District has any development of note taken place.

PEAK HILL GOLDFIELD.

The output of gold was 2,389 fine ounces, and in the preceding year 2,823 fine ounces; a decrease of 434 fine ounces.

Copper ore to the extent of 250.93 tons, valued at £8,268 was raised, and in the preceding year 237.58 tons, valued at £7,618; an increase in tonnage of 13.35 tons, and in value of £650.

Mining has been very quiet, and no fresh discoveries were reported.

At Ilgarere work was continued on the copper shows, but owing to the cost of transport it only pays to forward the richest ore.

PHILLIPS RIVER GOLDFIELD.

The output of gold was 5,419 fine ounces, and in the preceding year 3,817 fine ounces; an increase of 1,602 fine ounces.

The production of copper ore was 5,428.08 tons, valued at £48,618, and in the preceding year 3,681.03 tons, valued at £24,093; an increase in tonnage of 1,747.05 tons, and in value of £24,525.

The increased production in both gold and copper is the result of the continued operations at the State Smelter. A great many mines have been kept going, and some of the returns have been particularly good.

A continuance of the progress is anticipated.

PILBARA GOLDFIELD.

The output of gold was 5,882 fine ounces, and in the preceding year 8,542 fine ounces; a decrease of 2,660 fine ounces. Black tin to the amount of 153.17 tons, valued at £15,939 was raised, and in the preceding year 78.65 tons, valued at £7,633; an increase in tonnage of 74.52 tons, and in value of £8,306.

The falling-off in the gold output is almost entirely due to the paucity of miners available. So many have enlisted that in every centre there is a shortage, and prospecting is at a standstill.

In the Marble Bar District the Bamboo Creek centre was the largest producer. At Tabba Tabba, Cooglegong, and Moolyella tin mining was active, but at Wodgina very little was done.

In the Nullagine District the gold output showed an improvement, due to an improved output from Eastern Creek, which promises to continue, there being good prospects of a plentiful water supply for battery purposes which hitherto has been wanting. At Nullagine a sluicing plant commenced operations towards the end of the year, but the first clean up will not take place until early in the New Year.

At Sandy Creek matters were very quiet.

WEST PILBARA GOLDFIELD.

The output of gold was 609 fine ounces, and in the preceding year 1,507 fine ounces; a decrease of 898 fine ounces.

Copper ore amounting to 948.87 tons, valued at £16,116 was raised, and in the preceding year 314.75 tons, valued at £3,546; an increase in tonnage of 634.12 tons, and in value of £12,570.

Forty-four tons of lead ore, valued at £770, and 20.78 tons of antimony, valued at £491, were also raised, but none of either in the preceding year.

There has been practically no change in this field, but there are signs of greater activity in connection with the Whim Well Copper Mine eventuating during the coming year.

WEST KIMBERLEY MAGISTERIAL DISTRICT.

No work was done on the Iron Leases at Yampi Sound. There was very little prospecting undertaken, and nothing to report.

YALGOO GOLDFIELD.

The output of gold was 8,195 fine ounces, and in the preceding year 8,842 fine ounces; a decrease of 647 fine ounces.

This decrease is general throughout the field, and can be attributed to the scarcity of miners and prospectors. A State battery has been erected at Warriedar, which should be of great assistance to the prospector in that locality.

No fresh discovery of note was made.

YILGARN GOLDFIELD.

The output of gold was 87,994 fine ounces, and in the preceding year 91,124 fine ounces; a decrease of 3,130 fine ounces.

In the Southern Cross centre several tributers and prospectors have been steadily working. Also at Kennyville and Hope's Hill.

At Bullfinch the Proprietary Mine has continued to be a steady producer. The Corinthian North Mine unfortunately closed down as a result of the roasters which had been erected not having the result anticipated.

At Golden Valley matters were somewhat quiet, although several parties raised payable crushings.

At Marda a few mines have been working, and a revival is predicted.

At Marvel Loch prospecting has been very active, and a good many crushings raised.

At Nevoria the chief producer is the Great Victoria, which has been worked continuously, and the Never Never Mine again entered the list of producers.

At Parker's Range there was a good deal of prospecting.

At Westonia the mines have been actively worked, and contributed largely to the output.

The prospects of the field are good.

TABLE 30.

Value of Mining Machinery and Number of Stamps and other Mills erected on the 31st December, 1916, compared with the previous Year.

Goldfield.	District.	Value of Mining Machinery.		Batteries. Number of Stamps.		Mills. 1915.								Mills. 1916.							
		1915.	1916.	1915.	1916.	Prospecting.	Ball.	Griffin.	Huntington.	Puddlers.	Other Crushers.	Flint.	Grinding Pans.	Prospecting.	Ball.	Griffin.	Huntington.	Puddlers.	Other Crushers.	Flint.	Grinding Pans.
		£	£																		
1. Kimberley	... ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2. Pilbara	Marble Bar	9,378	9,200	63	63	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Nullagine	6,313	32,025	28	28	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	2
3. West Pilbara	... ...	3,700	3,100	35	40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4. Ashburton	... ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5. Gascoyne	... ...	1,100	1,100	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6. Peak Hill	... ...	8,248	7,963	40	40	...	...	...	...	...	2	...	...	...	...	...	...	...	2	...	...
7. East Murchison	Lawlers	19,041	17,381	118	108	...	...	...	...	...	3	...	1	...	...	...	...	...	1	...	1
	Wiluna	63,144	61,412	85	85	1	1	...	...	...	3	1	10	2	...	...	...	...	3	1	11
	Black Range	141,304	111,234	140	140	...	1	...	...	...	3	1	15	...	1	...	...	...	3	1	10
8. Murchison	Cue	18,582	27,906	75	85	...	...	...	...	...	1	...	2	...	...	...	...	...	1	...	1
	Meekatharra	173,876	149,847	182	122	...	...	...	...	...	4	2	21	...	...	...	...	...	2	2	18
	Day Dawn	203,300	162,300	55	65	...	...	...	...	...	4	...	8	...	...	...	...	...	4	...	12
	Mt. Magnet	27,709	25,733	60	50	1	1	...	...	...	1	...	5	2	...	...	...	1	1	...	2
9. Yalgoo	... ...	26,731	35,320	73	73	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	9
10. Mt. Margaret	Mt. Morgans	7,709	7,559	55	55	...	...	...	...	...	...	...	6	...	...	...	...	...	...	...	3
	Mt. Malcolm	232,725	231,462	135	127	...	...	...	1	...	1	3	15	...	...	...	...	...	1	3	15
	Mt. Margaret	65,198	49,811	99	70	...	6	...	...	...	2	...	18	...	6	...	...	...	2	...	11
11. North Coolgardie	Menzies	60,827	62,071	105	90	...	...	...	1	...	4	...	23	...	...	...	1	...	3	...	19
	Ularring	12,174	11,977	45	40	...	...	...	2	...	1	...	4	...	...	...	1	...	...	...	4
	Niagara	6,824	7,137	60	60	1	...	...	...	...	...	...	7	...	1	...	...	...	...	...	5
	Yerilla	14,577	17,650	51	50	...	...	...	...	...	...	...	5	...	...	...	...	...	2	...	7
12. Broad Arrow	... ...	56,137	64,432	45	45	...	1	...	2	1	...	...	11	...	1	...	3	...	1	...	11
13. North-East Coolgardie ...	Kanowna	22,470	16,998	138	138	...	...	...	...	1	3	...	6	...	...	...	...	1	3	...	4
	Kurnalpi	200	170	5	5	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
14. East Coolgardie	East Coolgardie	1,532,428	1,331,478	575	545	2	49	13	7	1	42	33	182	2	43	13	8	2	43	33	169
	Bulong	16,000	9,800	30	40	...	...	...	...	...	1	...	1	...	...	...	...	...	1	...	...
15. Coolgardie	Coolgardie	87,901	54,841	256	249	...	...	...	...	...	1	...	12	...	...	...	2	...	3	...	10
	Kunanalling	10,838	11,525	85	85	...	...	...	...	...	1	...	2	...	...	...	1	...	2	...	2
16. Yilgarn	... ...	202,332	244,273	152	177	...	1	...	...	1	1	4	19	...	2	...	...	1	2	4	18
17. Dundas	... ...	35,279	30,864	105	105	...	...	...	...	...	2	...	16	...	...	...	...	...	2	...	17
18. Phillips River	... ...	12,390	13,100	45	45	2	...	...	...	...	...	...	1	1	1	...	...	...	1	...	1
State generally	... ...	20,000	30,000	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...
Total Gold-extracting Machinery		3,098,435	2,839,669	2,941	2,826	8	60	13	13	4	80	44	394	8	56	13	16	5	84	44	362
Total Machinery, other than Gold-extracting		311,272	323,606	10	10	1	...	...	2	3	16	...	2	...	...	...	2	3	22	...	2
TOTAL MINING MACHINERY		3,409,707	3,163,275	2,951	2,836	9	60	13	15	7	96	44	396	8	56	13	18	8	106	44	364

PART VIII.—EXISTING LEGISLATION.

At the close of the year the Acts in force relative to mining were:—

1. "The Mining Act, 1904."
2. "Sluicing and Dredging for Gold Act, 1899."
3. "Mines Regulation Act, 1906."
4. "Coal Mines Regulation Act, 1902."
5. "Mining Development Act, 1902."
6. "Mines and Machinery Act, 1911."
7. "Mines Regulation Act Amendment Act, 1915."

The following alterations, etc., regarding Regulations were gazetted:—

Under the Mining Act, 1904—

An amendment of Regulation 67.

An amendment of Regulation 195.

An additional Regulation No. 40b, relative to the granting of Mineral Claims.

An additional Regulation No. 205b, relative to the cutting of timber on Coal Mining Leases.

Under the "Mines Regulation Act, 1906"—

The cancellation of Clause 1 of General Rule 9 and substitution of a fresh one in lieu thereof.

Regulations relative to District and Workmen's Inspectors of Mines.

An amendment of paragraph "d" of Clause 1 of General Rule 9.

An additional General Rule, No. 42, under Regulation 4.

PART IX.—INSPECTION OF MACHINERY.

The Chief Inspector of Machinery reports that the number of useful boilers at the end of the year totalled 3,026 as against 3,021 total for the preceding year, showing an increase, after all adjustments, of 5 boilers.

Of the total 3,026 useful boilers, 1,719 were out of use at the end of the year; 1,339 thorough, and 171 working inspections were made, and 1,349 certificates were issued.

Permanent condemnations totalled 22, and temporary condemnations, 60. There were no conversions, but 7 boilers were exported.

The total number of machinery plants in use was 4,874 against 4,165 for previous year, showing an increase of 709. Inspections made total 2,874, and 2,872 certificates were granted.

122 applications for engine-drivers' certificates were received and dealt with, and 100 certificates, all classes, were granted, as follows:—

First Class Competency (including certificates issued under Regulation 27 and Section 63 of the Act)	4
Second Class Competency (including certificates issued under Regulation 27 and Section 63 of the Act)	24
Third Class Competency (including certificates issued under Regulation 27 and Section 63 of the Act)	41
Locomotive Competency (including certificates issued under Regulation 27 and Section 63 of the Act)	10
Traction Competency (including certificates issued under Regulation 27 and Section 63 of the Act)	4
Interim Competency (including certificates issued under Regulation 27 and Section 63 of the Act)	9
Copies Competency (including certificates issued under Regulation 27 and Section 63 of the Act)	8
Total	100

Total mileage travelled was 43,853 miles, of which 23,454 were by rail, 20,049 by road, and 350 by water.

PART X.—SCHOOL OF MINES.

Steady progress has been maintained during this, the thirteenth year of the School's existence. The attendance at the School has of course been detrimentally affected by the number of students who have gone to the war. The effect has been most felt in the Mining and Surveying Department.

In the Chemistry Department, in addition to the routine work of instruction, a research has been conducted on Boiler Feed Water, the report for which is nearly completed.

The Research Scholarship of £100 was the generous gift of Mr. Robert Falconer.

A number of intending students were unable to gain admission to the Gas Engine Class, and there is a constant demand for extensions in the Engineering Workshops. The Gas Engine and Indicator lectures have been very popular and have enabled men formerly quite unfamiliar with the driving of gas plants to obtain a good working knowledge of practical operations.

This has been of considerable value to the mines, especially in the remote districts.

As a result of the recommendation of a University Committee the Senate has adopted a report embodying amended Regulations for recognition of classes at the School of Mines, but no action is to be taken as regards Mining and Metallurgy until a further report is received.

The system of free assays for prospectors has been continued, and a total of 298 assays and determinations was made. By this means a large amount of valuable information has been supplied to prospectors.

CONCLUSION.

In dealing with the operations of the various subdepartments I have only briefly commented on the principal items. Full and detailed information will be found in the reports of the various officers controlling, published as Divisions II. to VII. of this report.

In conclusion, I desire to acknowledge the support received from all officers of the Department during the year, particularly as most of them have been compelled, consequent on the large number who have enlisted, to work at very high pressure. Since the outbreak of hostilities to the end of the year 38 of the staff have enlisted, and of these four (4) have, I regret to record, lost their lives.

H. S. KING,
Under Secretary for Mines.

Department of Mines,
Perth, 31st March, 1917.

DIVISION II.

REPORT OF THE STATE MINING ENGINEER FOR THE YEAR 1916.

The Under Secretary for Mines, Perth.

Office of State Mining Engineer,
Perth, 31st January, 1917.

Sir,—

I have the honour to submit my Annual Report for the year 1916, for the information of the Hon. the Minister:—

INSPECTION OF MINES UNDER "THE MINES REGULATION ACT, 1906," AND "THE COAL MINES REGULATION ACT, 1902."

During the year there were several changes in the personnel of the Inspection Staff. Mr. Gourley having joined the Forces in April, 1916, Mr. S. Irwin was appointed temporarily to his position at Kalgoorlie. In August, 1916, Mr. S. Cullingworth resigned from the public service to take up the managership of the Fremantle Trading Company's lead mines at Northampton, Mr. R. C. Wilson being appointed to the position of Relieving Inspector in his stead.

Workmen's Inspectors of Mines.—In accordance with the Mines Regulation Act Amendment Act, 1915, Workmen's Inspectors of Mines have been appointed, after election by the men, for the East Coolgardie, Murchison and Mt. Margaret Goldfields, viz., Messrs. H. M. Crocker and L. Darcy for the Kalgoorlie, A. L. Kemp for the Leonora, and J. Goggin for the Meekatharra Districts. In November Mr. A. L. Kemp enlisted for the war, and up to the end of the year the vacancy had not been filled.

REPORTS OF INSPECTORS OF MINES.

Owing to the necessity to reduce printing expenses, the Annual Reports of the Inspectors of Mines are not this year submitted *in extenso,* but merely by a brief summary of their most important contents.

Report of Mr. W. M. Deeble, Inspector of Mines, Cue.

Central Goldfield.

Owing to shortage of labour and the increased costs of mining materials, due to the war, a number of mines have been compelled to close down, and it seems a question whether it is wise to insist on strict labour conditions for mines which are not paying their way, or if it would not be better that the miners available should work in the mines where better results are being obtained.

Peak Hill Goldfield.

Only a few small shows are being worked in the Mt. Egerton District, while at Peak Hill there are 20 or 25 men working around the old Peak Hill mine. Some good copper specimens were brought in, but the shows are too distant from railway communication to be payable under present conditions. The Ilgarere field, however, has continued to turn out a fair amount of high grade ore under very adverse circumstances. At Ruby Well very little is going on, the Harder to Find G.M. having closed down towards the end of the year. At Holden's Find a five-head mill erected on the Waterloo G.M. will be of great assistance to the district generally.

Meekatharra District.—The Fenian, Ingliston Consols, Ingliston, and Commodore mines have been carried on during the year with considerable success. The Ingliston Extended Coy. has ceased operations, and has let the mine on tribute. The small Gwalia mine promises well.

Cullculli.—Several small rich parcels have been crushed from this new find situated about fourteen miles south of Nannine.

Cue District, Cue.—The Light of Asia G.M. is opening up well at its bottom level, 242 feet.

Tuckabianna.—The Triplicate and Toscano mines have been crushing ore with considerable success, and a number of other leases have been taken up in their vicinity.

Jasper Hill.—The Black Range Pinnacles G.M. Co. have erected a complete treatment plant capable of treating 2,000 tons per month.

Big Bell.—The Big Bell G.M. Co. have erected a ten-head mill and cyanide plant on their large lode about 18 miles west of Cue, but owing to shortage of water have not been able to run full time.

Day Dawn.—The Great Fingall G.M., during the first three months of the year, did development work only, and since resuming ore-breaking has been greatly hampered by shortage of labour.

Lake Austin.—A lode traceable for 500 feet has been worked in a small way by two parties of prospectors.

Lennonville.—At the Empress G.M. good values were met with on the winze below the bottom level (338 feet), and it is now proposed to sink a new shaft and erect another five head of stamps.

Mt. Magnet and Boogardie.—This centre has suffered from loss of men gone to the war, but those remaining have been fairly successful, mostly working as small co-operative parties. At the new Havelock G.M. a five-head mill and suction-gas engine have been erected to work a large lode of variable value. At the Mars G.M. the mill has been kept running on low grade ore from open cuts on the Mars and Ethel May leases.

Yalgoo Goldfield.

Yalgoo.—A unit mill of a new type known as the "Apex" has been erected on the Emerald mine, and a number of small parcels have been treated by it from several parts of the district.

Yuin.—The principal mine, the Royal Standard, closed down towards the end of the year.

Gullewa.—The Mugga King has been working on a small scale.

REPORT OF MR. A. W. WINZAR, INSPECTOR OF MINES, SANDSTONE.

East Murchison Goldfield.

The gold yield has declined considerably, principally on account of the closing down of the Black Range mine. Lawlers and Wiluna, however, both show increases in both tonnage and values obtained. No new finds of importance have been found. Most of the mines report shortage of efficient labour. The condition of the mines during the year has been good, and special attention has been given to the suppression of dust and improvement in ventilation.

Black Range District.—The Youanmi G.M. looks very well indeed, and a vigorous policy of development is proposed for 1917. Other small producers in the district were the Black Range West G.M., Nancy's Reward, Comedy King, United, and Red White and Blue.

Wiluna.—This district has shown considerable increase in production owing to the State Mill being in constant operation. The principal producers have been the Violet, Happy Jack, Happy Jack South, Moonlight, and Page's Lease.

Mount Keith.—The Aurora, Miss-deal, and several other parties are working with payable results.

Lawlers.—The prospects here point to an increased yield in 1917. The Waroonga has been working at a profit with low costs, and the Great Eastern has been mostly cyaniding tailings. Small parcels were also crushed from the Queen, Try-it, and May Bee mines. Sixty-three tons of copper-ore have been sent away from Vistarini's P.A. in this district, but owing to distance from the railhead nothing under about 18 per cent. can be exported profitably.

Lake Darlôt.—The New Year's Gift, which dollied 319 ozs. of gold, was the only producer.

Kathleen Valley.—The Yellow Aster continues to raise ore of payable grade, and developments have given good results.

Mount Sir Samuel.—Several small shows have been working, the Isidore being the principal producer.

Mount Margaret Goldfield.

Very little work is being done in the small portion of this field which is in the Sandstone Inspector's district. The Victory mine and Madigan and Party at Mt. Clifford each got some hundreds of ounces from small patches of rich ore.

Yalgoo Goldfield.

Warriedar.—During the year the Youanmi G.M. abandoned their option over the Warriedar leases. A State mill is being erected and at the end of the year several parcels of ore were awaiting its completion. The principal producers were the Warriedar, Warriedar Option, Mug's Luck, and Ironclad. The Highland Chief is now being worked and looks encouraging. Some molybdenite was raised from the Mulgine Hill.

Field's Find.—The Field's Find Extended and Commodore mines are opening up well, and better returns are expected from both in 1917.

Payne's Find.—The reefs here are small and the country hard, but several small producers raised ore averaging over 1oz. per ton.

Mount Gibson.—The reefs as yet opened are small and prospects do not warrant the erection of a mill. A good deal of prospecting is being done.

REPORT OF MR. H. P. ROCKETT, INSPECTOR OF MINES, LEONORA.

Mt. Margaret and North Coolgardie Goldfields.

The total gold yield in this inspectorate was as follows:—

Mt. Margaret ..	265,750 tons for	100,540 ounces.
North Coolgardie	64,810 „	45,010 „
	330,560	145,550

The figures of gold yield compared with the previous year show a falling off of about 6,000 ozs. in Mt. Margaret, and 14,500 in the North Coolgardie goldfield. The decrease is largely due to the absence on active service of between 400 and 500 men. Although a good deal of prospecting was done no important discoveries were made. One party of five equipped and sent out by the Sons of Gwalia G.M. did a large amount of work.

Leonora.—The Sons of Gwalia mine shaft has now reached a total of 3,529 feet on the incline. Development at the No. 21, 22, and 23 levels is said to be satisfactory. On the Leonora North Blocks mine a ten-head battery and cyanide plant are being erected. Several other mines in the district have been worked with small output.

Mount Morgans.—The Westralia Mount Morgans mine is again on the dividend list and has very good prospects. The Mount Morven, Bravo and Transvaal mines also produced a little gold.

Murrin Murrin.—The Eulaminna has been raising pyritic ore containing 3.95 per cent. copper, and the Nangaroo mine similar ore containing 2.88 per cent. copper, used for the production of sulphuric acid.

Laverton.—The Lancefield G.M. has had a satisfactory year, and the success of the undertaking now seems certain. The main shaft has reached 1,181 feet depth. At the Ida H. G.M. the No. 15 level has been opened up, and the value of the ore is said to show a marked improvement. Several other mines are working on a smaller scale with varying success.

Burtville.—The Nil Desperandum was the largest producer, but the average grade of ore was lower than previously.

North Coolgardie Goldfields.

Menzies District.—The returns from this district show a serious decrease. At Menzies the Lady Shenton was the biggest producer. The only others producing over 100 ounces of gold were the Robinson Crusoe, Flying Fish, and Menzies Exploration.

At Woolgar the Menzies Consolidated G.M. had a satisfactory year, and paid a dividend (No. 3). The 1,600ft. level is opening up well.

At Comet Vale there has been increased activity, especially at the Sand Prince mine, where a lot of development has been done. The Princess Royal Co. is sinking the Happy Jack main shaft. The Sand Queen did 677 feet of development, but had a much smaller output than last year. The Gladsome G.M.

crushed a considerable tonnage of rather poor ore, but did little development.

At Goongarrie a Kalgoorlie Syndicate have taken over the New Boddington G.M., and have erected a 10-head battery. The main shaft was sunk 300 feet.

At *Mt. Ida* little mining was done. The Forrest Belle and Wild Rose were the principal producers.

Ularring District, Mulline.—The Riverina South is the principal mine. Development is proceeding rapidly, and a new 10-head mill is to be erected.

Davyhurst.—The Little Dele crushed a quantity of very low grade ore. The battery from the Waihi mine is being removed to this mine.

Kookynie.—The Cosmopolitan No. 2 continues to give satisfactory returns.

Very little was done in the *Yerilla* and *Yundamindera* and *Linden* districts.

At *Edjudina* the Senate gave fair returns.. About 10 parties are working in this centre. *Pingin* and *Yarri* are nearly deserted.

REPORT OF MR. J. CRABB, INSPECTOR OF MINES, COOLGARDIE.

Coolgardie, Yilgarn, and Dundas Goldfields.

During 1916 the mining industry on these fields was unfavourably affected by war conditions, especially increased cost of mining supplies and want of efficient labour. There was much less surface prospecting than formerly, and no new discoveries of importance were made.

Coolgardie Goldfield.

Mining, which has been carried on by small parties of prospectors, has been somewhat dull.

Coolgardie.—McCulloch and party discovered a small rich shoot in Bayley's G.M., and Taylor and party on the Last Chance G.M. obtained rich results from dollied specimens. At the King Solomon mine soft ore from an open-cut is said to be mined and milled for 4s. a ton.

Higginsville.—The Sons of Erin G.M. is said to be looking more promising than for some time past. Some scheelite was mined and treated from here, but milling was discontinued on account of the poor recovery obtained on the Wilfley table.

Eundynie.—A party of tributers are doing a little work on the Hidden Secret G.M.

At *Widgiemooltha, Burbanks, Londonderry, Gibraltar,* and *Bonnievale* small parties of prospectors only are working.

At *Carbine* good progress was made at the Carbine G.M., but no new development of much importance took place.

Yilgarn Goldfield.

At *Murda, Golden Valley,* and *Manxman* operations for the year have been on a small scale only.

At *Bullfinch* the usual tonnage, amounting to about 6,500 tons per month, was treated, and an average of 160 men employed.

The Corinthian North during the latter part of the year closed down temporarily until the cessation of war, on account of shortage of labour.

Westonia.—Good progress was made at the different mines. The Edna May G.M. had a very profitable year despite heavy pumping expenditure. It is estimated that 5,000 tons of water are pumped per day. The main shaft is now 400 feet deep, and a crosscut is being driven to cut the reef at 385 feet. A new 360-h.p. wood-gas engine and a slime treatment plant have been erected. The latter consists of three L.C. Trent Units for collecting and separating the gold solutions from the pulp.

At the Edna May Deeps the Edna May lode is reported to have been intersected at the bottom level and a good deal of driving done on it. A new make of stone was cut in the bottom level of the Edna May Consolidated reported to be highly payable. A 5-head mill was erected at the Edna May Battler, and a fair quantity of 1oz. ore has been treated. At the Edna May Central a start has been made to sink the incline shaft from the 360ft. level.

At *Marvel Loch* small parties of prospectors only were working.

At *Burbidge* the Great Victoria crushed about 1,000 tons a month of low-grade ore from open-cut mining.

At *Parker's Range* Quinlan's new show looks very promising, and at the Scots Greys the main shaft is being sunk to obtain sufficient water to run a 5-head mill.

Dundas Goldfield.

Mining on this goldfield has been dull. Apart from the Mararoa and Viking No. 1 G.Ms. a few small shows have been worked by prospectors and tributers from which fair returns were obtained. A little scheelite mining was done near Norseman, but a parcel sent to Kalgoorlie was not profitable.

REPORT OF MR. W. F. GREENARD, INSPECTOR OF MINES, KALGOORLIE.

East Coolgardie, North-East Coolgardie, and Broad Arrow Goldfields.

Systematic inspection of the mines has been carried out, and the provisions of the Mines Regulation Act have been strenuously enforced.

Dust.—Excellent results have been obtained in the suppression of dust underground by sprays and jets. The dust from dry crushing plants has been more difficult to deal with, but a big improvement has been effected by covering all dust outlets and keeping the exhaust fans and pipes in good order. Use of respirators is enforced where dust is unavoidable. After much pressure, the Golden Horseshoe Co. have ceased to add to their high slimes dump, and are pumping their residues away, and steps have been taken to cover the dump with coherent slime. Mining development generally has been almost stopped through the shortage of labour. Good prospecting propositions were located at Mt. Monger and Broad Arrow. The Ivanhoe main shaft has now reached a depth of 3,640 feet, and the Golden Horseshoe 3,140 feet.

REPORT OF MR. S. IRWIN, INSPECTOR OF MINES, KALGOORLIE.

Kanowna.—The Lily Australis and White Feather Main Reefs, Victoria and Kanowna Consols mines have been the principal mines in operation, but work is also being undertaken on the Moonlight Lead.

Broad Arrow.—Mining on the field has been brighter than for several years past. Borland and Rudd have had good returns, and their shoot of ore has been located in the Tara lease adjoining. The Lady Bountiful has been unwatered and a good deal

of driving done with promising prospects. At the Duke mine a new lode has been located and sunk upon.

Golden Ridge.—In the Golden Ridge G.M. the upper levels only were worked, keeping the 20-head mill running one shift. The Elsie May G.M., situated south-east of the Golden Ridge, has sunk a new shaft 100 feet, at which depth a crosscut exposed 9 feet of payable ore. This find has caused new life to be put into prospecting in this locality, and a number of leases have been taken up.

Kalgoorlie.—Idaho G.M.: Development is proceeding at the 100ft. and 180ft. levels, and payable ore is being mined on several lodes. The Star of Aberdare is worked in conjunction with the Idaho. At 100 feet the lode is 12 feet wide for a length of 200 feet. A 10-head stamp battery and cyanide plant and a 50-h.p. suction gas plant have been installed. From 1,200 to 1,500 tons are treated monthly.

A Huntington mill plant has been erected on the Lake View South, and the Lake View South Extended workings have been unwatered. Tributers in the Central and West Boulder mine have broken payable ore from pillars about the 100ft. level. Tributers in the North Kalgurli mine are mostly working from prospecting shafts. The Paringa mine has been unwatered to No. 4 level, and has been again tried by several prospecting parties. In the Oroya South Blocks a shoot of sulphide ore is being worked. The Oroya North blocks was let on tribute in September, employing about 50 men on small leaders and short runs of ore left by the company when working the mine. The same company works the New North Boulder and Bank of England mines in like manner. Tributers have done work in the Brown Hill mine, some very rich ore being secured. The Ironsides North and Union Jack have been keeping a 10-head mill running one shift, and a south drive at 300 feet in the Ironsides North is being extended to reach large bodies of low-grade oxidised ore in the Union Jack section. In the Associated Northern mine tributers continue to work very successfully on small rich telluride veins round the workings of the old ore body. Tributers are also doing fairly well in the Eclipse and Croesus Proprietary, and the company propose sinking the main shaft another lift to open up below 1,000 feet. A good deal of work has been done on the Cassidy Hill and Maritana Hill leases.

On Hannan's Reward Hunt Bros., tributers, have erected a Huntington mill which has run constantly. In the Adelaide Enterprise the main shaft was sunk a further 50 feet, and a large body of oxidised ore is worked, with the mill running constantly. The Kalgoorlie Enterprise is another low-grade proposition equipped with a Huntington mill. The Hannan's Reward North is working rather low-grade oxidised ore. The Hidden Secret and Mayman's Consols and several other holdings have been worked with varying success.

Report of Mr. W. Phoenix, Inspector of Mines, Kalgoorlie.

During the period under review the mines have been regularly and systematically inspected, and all defects likely to cause danger have been remedied.

Gates on Cages.—Gates on cages are giving satisfaction, and are constantly used at relief of shifts.

Ropes.—The system of examining and lubricating ropes is very satisfactory. There is no record of rope breaking during the year.

Travelling Chairs in Shafts.—These have been adopted, and are giving every satisfaction.

Dust in Dry Mills and Underground.—An improvement in this respect is noticeable throughout most of the dry crushing mills. There is, however, room for further improvement. Close attention is being given to water spraying.

Report of Mr. R. McVee, Inspector of Mines, Collie.

Collie Coalfield.

At the beginning of the year only four collieries were producing coal, viz., Proprietary, Co-operative, Cardiff, and Westralian Collieries. The Scottish Colliery ceased operations at the beginning of the year. An additional inflow of water and a breakdown in the pumping machinery caused a flooding of the mine, which is now full of water. The company are now engaged in boring operations to locate a site for a new colliery. The Premier Colliery again commenced to produce coal in February 1916, but the output was small owing to want of men used to hand mining. The total coal from the field was 294,525 tons, valued at £147,880, as against 286,268 tons, valued at £137,633, for 1915. The average number of men employed was 456.

There has been a steady increase of plant at the various collieries.

Prospecting.—The results of boring operations by the Co-operative Colliery have more than justified the expense involved. On the prospecting area held by Mr. Simms boring has been successful, and a prospecting shaft is now being sunk which has passed through one seam of coal and is being continued down to the next. In appearance these are like the lower or Wallsend series.

Report of Mr. S. Cullingworth, Inspector of Mines, Perth.

(For first half-year only.)

Pilbara, West Pilbara, and Phillips River Goldfields, Greenbushes and Northampton Mineral Fields, and Swan Mining District.

Most of the half-year was spent in relieving the Inspectors for the East Murchison and Mt. Margaret fields, and assisting in the East Coolgardie field, but visits were also made to the mines of the Greenbushes, Phillips River, and Northampton districts, and the quarries in the Swan district.

Northampton Mineral Field.

A certain amount of renewed activity has been displayed in this field. The Baddera and Narra Tarra mines have been fully occupied, and the Uga main lode and Kirton's have been actively worked. The Nooka, which has long been idle, has been re-applied for. Prospecting work is being carried on north of Kirton's mine and at Howatharra. At the Baddera lead mine the main shaft is being sunk below the No. 3 level. At the Narra Tarra lead mine the main shaft has been sunk to 350 feet.

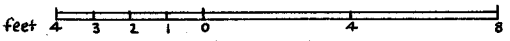
Greenbushes Mineral Field.

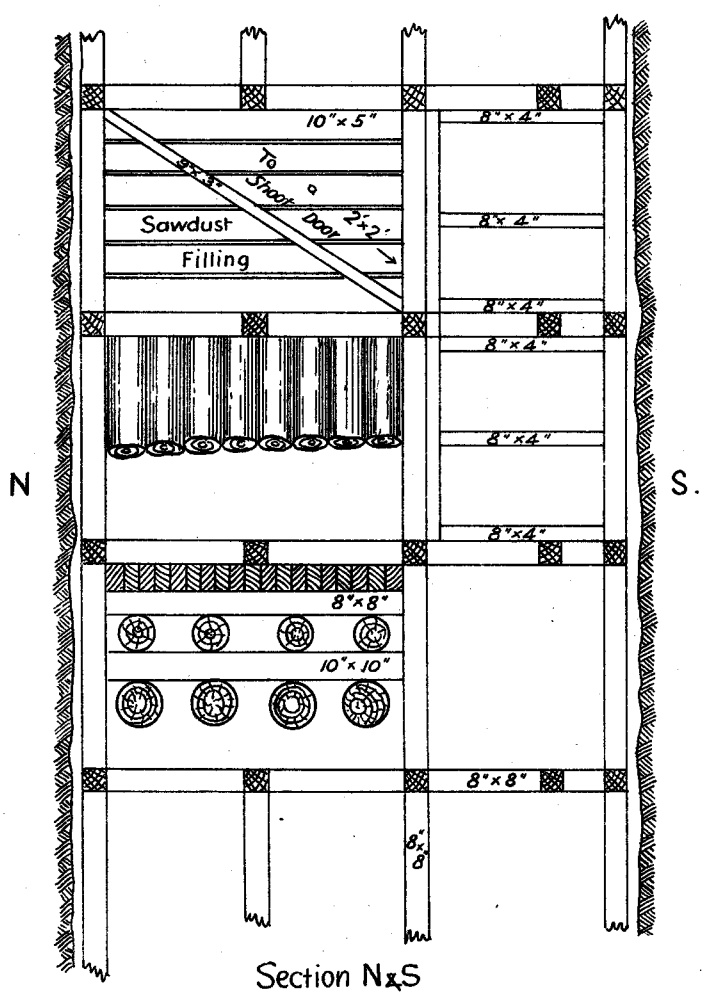
Operations now consist almost entirely of dredging and sluicing. Good faces are showing at Mr.

DETAIL OF PENT HOUSE

Golden Horse Shoe Estates Co. Ltd

SCALE





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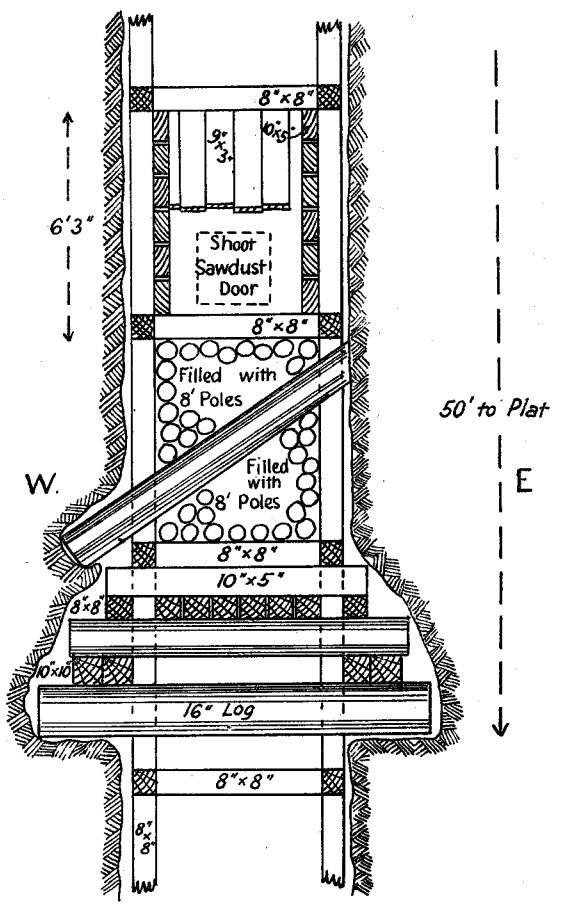

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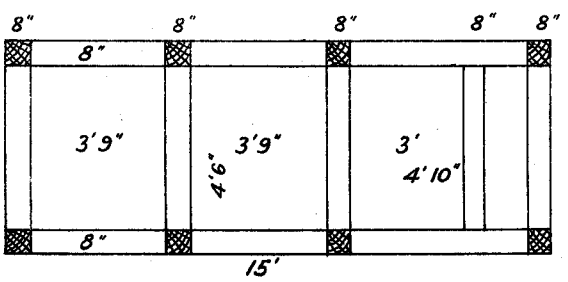

DETAIL OF SKIPS

Golden Horse Shoe Estates Co Ltd

SCALE

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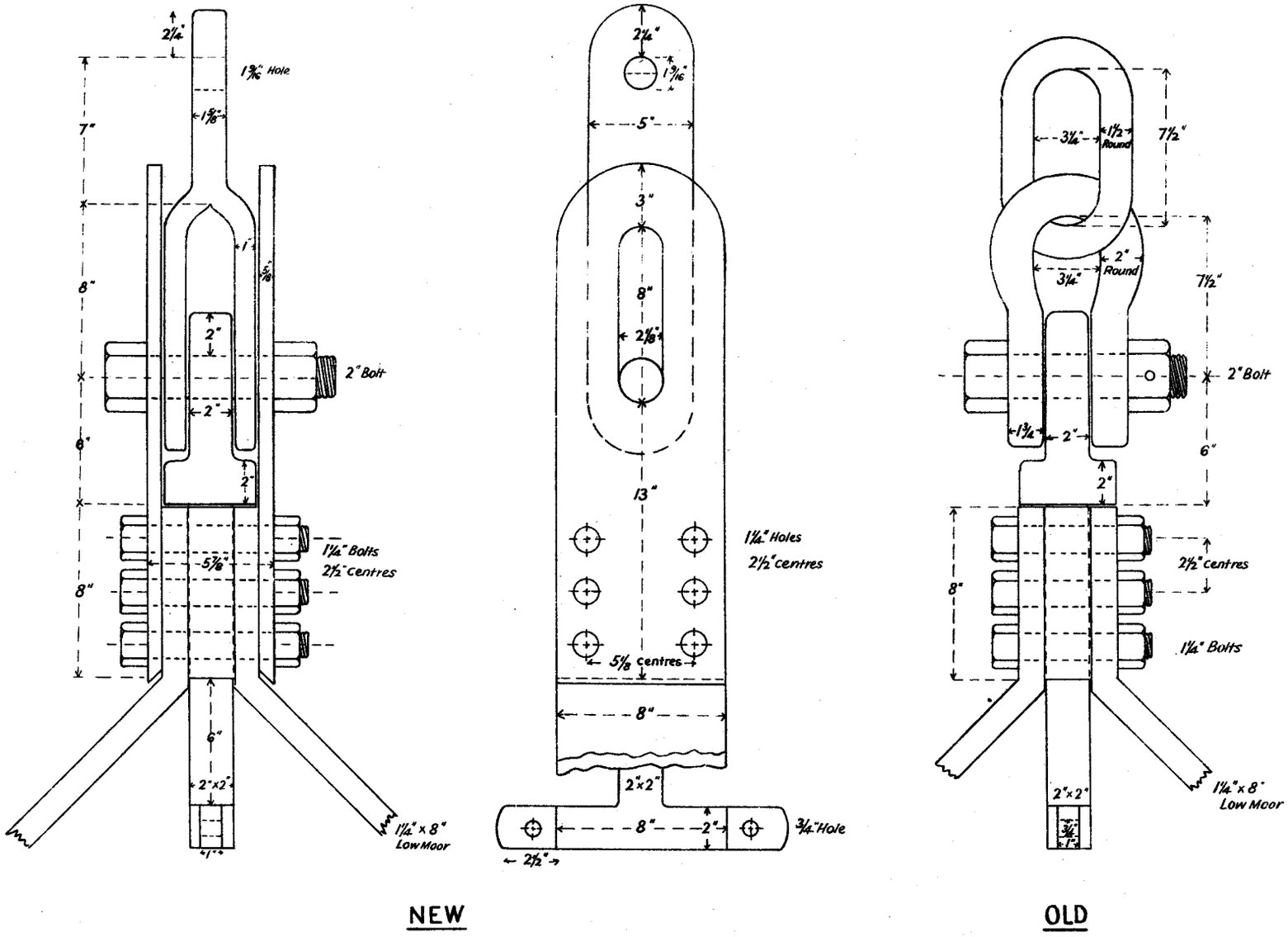


NEW

OLD

Moss' Spring Gully dredge, at the Phœnix, at Messrs. Giese and Angus' claim, and at the Central, belonging to the Greenbushes Development Co. Messrs. Blakeney and Teede have moved their plant, and appear to have a good extent of deep ground ahead of them.

Phillips River Gold and Copper Field.

The high price of copper has naturally been of great assistance to the district, as it has made profitable several large dumps of low-grade ore, notably the Elverdton and Cattlin seconds, comprising some thousands of tons, which are now being concentrated and smelted. At the Kundip end of the field the Two Boys, Gem Consolidated, Flag, Harbour View, and Gem have been regularly sending small parcels to the smelter. The high gold values of the ore in these mines is notable. The Elverdton G.M. and Desmond G.M. are being worked by tributers above water level.

Swan Mining District.

During the year additions have been made to this district by including the Cardup Brickworks and the State Brickworks at Beenup, and later the Roelands Quarry. Several alterations and improvements in methods of working have been effected, and there is now a closer supervision of working faces than previously. Some of the quarries are now attaining large dimensions with high faces requiring close attention.

Kendinup Mineral Field.

This field has been proclaimed to bring the Graphite mine at Kendinup under the Mines Regulation Act.

Mining Accidents.

The mining accidents for the year 1916 are tabulated in Tables 26, 27, 28, and 29, with the previous year's totals for comparison, and forwarded herewith for inclusion in your Annual Report, together with diagram of the fatal accidents year by year, and their causes.* As pointed out in previous years, the accidents tabulated in the above returns are restricted entirely to such as have happened to persons engaged in the occupation of mining, and which have been a result of their calling. The following statement, however, shows also the total number of fatal accidents recorded as having happened on mines, whether to persons employed on the mines or not, for the last five years.

	1912.	1913.	1914.	1915.	1916.
Total fatal accidents on Mines reported	38	26	26	36	23
Less accidents to persons not engaged in mining, deaths in mines due to natural causes, and accidents to persons which were not due to their occupation as miners	3	..	..	2	1
Fatal accidents to men engaged in mining	35	26	26	34	22
Total men engaged in mining (average)	14,961	14,780	13,174	12,253	10,903
Accident death rate per 1,000 men engaged in mining ..	2·34	1·76	1·97	2·77	1·93

Table 26 shows the number of accidents in the various gold and mineral fields classified according to causes, and it will be seen from it that during 1916 22 persons were killed and 847 seriously injured, as compared with 34 killed and 923 seriously injured during the previous year.

The diagram shows graphically the totals of fatal accidents year by year since 1891.

In table 27 the death rate per 1,000 persons employed on surface and underground in gold, coal, and other mines is shown, the general average rate for 1916 being 1.93 as against 2.77 for 1915. The rates per 1,000 are based upon the figures in table No. 21 (Annual Report, Secretary for Mines, 1916), which gives a grand total for 1916 of 10,903 men employed at mines above and under ground, inclusive of alluvial workers.

Table 28 is a new table, its compilation being rendered necessary through the quarries having been brought under the Mines Regulation Act. It shows that one fatal accident occurred during 1916, and that the death rate per 1,000 men employed was 5.78. This result, however, cannot be regarded as indicative that quarry work is relatively more dangerous than mining, as the number of men employed is so small that averages would have to be taken over several years in order to determine a reliable figure of fatalities per 1,000 men employed. The same consideration applies in table 26 to the districts and fields in which only a few men are employed, one fatal accident in which gives a high figure per 1,000 for that particular year of its occurrence.

Table 29 summarises all the fatal accidents for 1916 above and below ground in gold mines only, with rates per 1,000 men employed, and per 1,000 tons of ore raised, similar figures for 1915 being given for comparison. The number of men on which these rates are based is taken from table 23 (Annual Report, Secretary for Mines, 1916), and does not include alluvial workers.

The following general table classifies the fatal and serious accidents during 1916, according to the gold or mineral field in which they occur, and also according to causes, the totals from each cause for 1915 being shown for comparison:—

* *See* tables in Annual Report of the Secretary for Mines, earlier in this Volume.

Goldfield.	Explosions.		Falls of Ground.		In Shafts.		Miscellaneous Underground.		Surface.		Machinery.		Total.	
	Fatal.	Serious.	Fatal.	Serious.	Fatal.	Serious.	Fatal.	Serious.	Fatal.	Serious.	Fatal.	Serious.	Fatal.	Serious.
1. East Coolgardie	..	8	6	57	..	14	3	375	1	147	1	11	11	612
2. Mt. Margaret	..	..	..	4	1	7	1	42	..	15	..	5	2	73
3. Murchison	..	..	1	8	1	2	1	18	..	4	..	..	3	32
4. East Murchison	..	..	3	1	..	..	..	4	..	4	1	3	4	12
5. Coolgardie	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6. Yilgarn	..	2	..	1	..	..	..	3	..	1	1	..	1	7
7. North Coolgardie	..	2	..	1	..	1	1	3	..	1	..	2	1	10
8. North-East Coolgardie	..	1	..	..	..	..	..	..	..	..	..	..	..	1
9. Broad Arrow	..	..	..	..	..	..	..	3	..	1	..	..	..	4
10. Dundas	..	..	..	..	..	1	..	..	..	..	..	..	..	1
11. Pilbara	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12. Peak Hill	..	..	..	..	..	..	..	..	..	..	..	..	..	..
13. Yalgoo	..	..	..	..	..	..	..	1	..	2	..	..	..	3
14. Phillips River	..	..	..	..	..	..	..	..	..	3	..	..	..	3
15. Collie	..	2	..	18	..	..	..	51	..	15	..	..	..	86
16. Greenbushes	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17. Northampton	..	..	..	1	..	..	..	..	..	..	..	..	..	1
18. West Pilbara	..	..	..	..	..	..	..	..	..	..	..	..	..	..
19. Swan	..	..	1	..	..	..	..	..	..	2	..	..	1	2
20. Ashburton	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total for 1916	..	15	11	91	2	25	6	500	1	195	3	21	23	847
Total for 1915	6	16	16	108	5	24	4	532	..	216	3	27	34	923

Fatal Accidents.

The following are brief particulars of each fatal accident reported during the year 1916:—

In Shafts.

A fatal accident occurred to a man prospecting on Crown lands in the Mt. Magnet district. He descended an old shaft, about 44 feet deep, and whilst in the act of cleaning out the bottom, a portion of the wall fell in and buried him. His mate procured assistance, but life was extinct when the body was recovered. An inquest was held and a verdict of accidental death brought in by the Coroner's jury. (1542/16.)

At the Ida H. Gold Mine, Mt. Margaret, a man was killed through falling down a shaft. At the time of the accident deceased was riding in the skip and, on reaching his plat, he got out on the wrong side and fell down the adjacent compartment. The plat was well lighted on both sides. Since the accident the compartments of the shaft have been divided by a fence. At the Coroner's inquest a verdict of accidental death was returned by the jury. (3634/16.)

Falls of Ground.

A man received fatal injuries at the Queen of the Hill G.M., Murchison Goldfield, through a portion of the hanging wall falling. An inquest was held, and the Coroner's jury returned a verdict of death from being struck by a fall of rock from the hanging wall, and added the following rider:—"That the Underground Foreman should have had that piece of rock tested as to its safety in his presence." The Inspector of Mines, however, did not consider that there had been any negligence on the part of the underground foreman, and after consideration of the whole case, it was decided that no legal action should be taken against him. (383/16).

At the Boya Quarry, Swan Mining District, a man was standing on the edge of the quarry and attempting to ease a loose boulder from near the top of the face when suddenly the boulder moved and carried away with it the piece deceased was standing on. Although a rope was provided, deceased was not using it as a support at the time, and the accident would, therefore, appear to have been due to want of caution on his part. (483/16.)

At the Great Boulder Proprietary G.M., East Coolgardie Goldfield, a man was killed through a sudden fall of earth from a graphitic hanging wall. Every precaution for safety appears to have been taken, and the accident was unforeseeable. The Coroner's jury brought in a verdict of accidental death, with no blame to anyone. (726/16.)

At the Golden Horseshoe G.M., East Coolgardie Goldfield, a shoveller was employed cleaning out a stope when a portion of the hanging wall fell on him, causing instantaneous death. This wall had been thoroughly examined the day of the accident, and was considered safe. The Coroner's jury returned a verdict of accidental death, with no blame attributable to anyone. (1029/16.)

At the Ivanhoe G.M., East Coolgardie Goldfield, a miner while shovelling ore into a pass was killed by a heavy fall of rock from the back. The place had been examined previous to the men starting work, and everything appeared safe. An inquest was held, and the Coroner's jury returned a verdict of accidental death, no blame being attributable to any person. (1457/16.)

Two men were killed at the Great Boulder Proprietary G.M., East Coolgardie Goldfield. At the time of the accident deceased were shovelling ore into a chute, when a portion of the hanging wall came away. On the morning of the accident the wall had been tested and was considered safe. The Coroner's jury returned a verdict of accidental death. (1601/16.)

Two men were crushed to death at the Red, White, and Blue G.M., East Murchison Goldfield, through a very heavy fall of stone from the roof of the stope. Prior to the accident the ground appeared safe. The Coroner's jury brought in a verdict of accidental death. (1769/16.)

At the Associated G.M., East Coolgardie Goldfield, a man on returning to his stope after it had been fired, was killed by a portion of the hanging wall falling on him. Prior to the accident the working place was considered exceptionally safe. The Coroner's jury returned a verdict of accidental death. (2709/16.)

At the Aurora G.M., East Murchison Goldfield, a man was crushed to death through a quantity of rock falling on him. At the time of the accident deceased was taking out the "dig," and it would appear that his death was caused through an error of judgment on his part in not pulling down, or supporting the back. (2284/16.)

Surface (including Machinery).

Two men were putting a belt on to a Berdan pan at the Wiluna State Battery when one of them was drawn into the shafting and killed. As the piece of rope which deceased had on his arm was found after the accident wound round the shaft, it was probably the cause of the mishap. At the inquest the Coroner's jury brought in a verdict of accidental death. (834/16.)

At the Corinthian North G.M., Yilgarn Goldfield, a man received fatal injuries through a portion of his clothing coming in contact with a revolving shaft, and drawing him on to the shafting while he was assisting to put a belt on a pump pulley. An inquest was not considered necessary. (848/16.)

An unfortunate accident occurred at the Great Boulder Proprietary G.M., East Coolgardie Goldfield, in which one man lost his life and two others received serious injuries by being thrown out of the skip through the engine-driver overwinding his engine. The accident was due to an oversight on the part of a fitter in neglecting to reopen the valves on the exhausts from the donkey engine. At the inquest the Coroner's jury returned the following verdict:—"That deceased came to his death through being tipped out of a skip into the crackers at Edwards' shaft caused by the winding engine being out of the driver's control, owing to the valve on the exhaust pipes leading from the donkeys operating the brakes and reversing gear on winding engine being closed. This being due to the culpable neglect of the fitter not opening them after having closed them to effect repairs." Rider: "We are of the opinion that for general safety it is advisable that all valves on exhaust pipes leading from donkeys operating brakes on winding engines should be removed; also, after any repairs being effected it would be advisable for driver to give engine a trial run." (After this accident new Regulation No. 42 "Testing Winding Engine after repairs" was introduced.) (849/16.)

Miscellaneous Underground.

While trucking at the Westralia-Mount Morgans G.M., Mount Margaret Goldfield, a man had his foot cut through a stone falling from the truck. The wound was not a dangerous one, but it became septic, and tetanus supervening the man died three weeks later. (799/16.)

A man received fatal injuries at the Great Boulder Proprietary G.M., E. Coolgardie Goldfield, through falling down an ore pass. As the deceased had to cross a heap of broken ore it is probable that he slipped on a rock and was precipitated into the pass. The Coroner's jury returned a verdict of accidental death, no blame being attributable to anyone. (2112/16.)

While trying to clear a choked pass at the Fenian G.M., Murchison Goldfield, a man met his death through the ore suddenly running and carrying him with it. On recovery of the body, life was found to be extinct. The Coroner's jury returned a verdict of accidental death with no blame attachable to anyone. (2649/16.)

At the Menzies Consolidated G.M., North Coolgardie Goldfield, a man met his death by being struck in the abdomen by a falling bar. On this mine it seems to have been the practice to tie the machine bar under the bucket instead of putting it into the bucket, and when being raised to the surface the bar became detached and fell, striking deceased. At the Coroner's inquest the jury returned a verdict of death from injuries received in a winze at the mine, there being no evidence to show how the said injuries occurred. (2982/16.)

At the Oroya Links G.M., E. Coolgardie Goldfield, some miners were working ore down a rill when a large rock got out of their control and, rolling down the rill, caught one of the men between it and another large rock at the bottom of the rill, inflicting fatal injuries. At the Coroner's inquest the jury returned a verdict of accidental death. (3001/16.)

A trucker was killed at the Ivanhoe G.M., E. Coolgardie Goldfield. Deceased, while pulling a truck from under a chute, became jammed between the truck and a low stull—which had been placed there to keep the main stull in position—and received fatal injuries. The Coroner's jury returned a verdict of accidental death, and added the following rider:—"In our opinion the stull should be removed." The Inspector of Mines was instructed to insist on the jury's recommendation being carried out, if at all possible. (3394/16.)

DEATHS IN MINES RECORDED BUT NOT INCLUDED IN THE STATISTICS OF MINING ACCIDENTS.

During 1916 there was only one accident which was not due in any way to the man's occupation, and therefore has not been included in the figures relating to persons employed in mines. The following are brief particulars of it.

At the Brown Hill G.M., E. Coolgardie Goldfield, some tributers were clearing a pass at the No. 2 level when they discovered the remains of a man who had evidently fallen down an open cut. From the appearance of the body, the accident had taken place some weeks before it was discovered. The open cut was well protected. An inquest was held, and a verdict of accidental death given by the Coroner's jury. (519/17.)

Serious Accidents.

Section 26 of the Mines Regulation Act, 1906, requires that all accidents which prevent the injured party from performing his ordinary work at the mine for 14 days or more must be classed as "serious," although, in many instances, the injuries are not such as to cause permanent or serious disablement. Of the 847 "serious" accidents during 1916, 612 were

recorded from the East Coolgardie Goldfield, but only 30 cases out of the number were breakages of the larger bones, permanent injury to limbs, or injuries likely to have lasting disabling effects. The balance were injuries of a less serious nature, such as bruises, cuts, broken and crushed fingers and toes, scalds, burns, poisoned cuts, shocks, smaller dislocations, strains, wrenches, etc., but sufficiently serious to cause the injured person to be away from work for 14 days or more.

Explosions and Explosives.

During 1916, 15 men were injured through explosions. In two cases the explosion occurred before the men had reached a place of safety; in four through explosions resulting from men boring into old holes; in one through a pellet exploding through coming into contact with a lamp; two men were injured by fragments scattered from sand blasts; three through detonators exploding while being handled; one through returning too soon to re-light a charge, which exploded as he approached; and two through being struck by flying stones from explosions through no warning having been given them that firing was in progress. (Action was taken in both cases.)

Falls of Ground.

Ninety-one serious accidents during 1916 were due to "falls of ground." In 14 cases the injuries were received while the men were engaged in the dangerous but necessary work of pulling down loose ground after firing. The majority of cases classified under the above heading were of a purely accidental nature inseparable from mining, and unpreventable, but in a few cases the inspectors of mines had to report that the accidents were due to want of ordinary care on the part of the workmen themselves.

In Shafts.

Twenty-five "serious" accidents occurred in shafts from the following causes:—

Nine from objects falling down shafts, such as buckets, stones, and timber; three from men receiving injuries through parts of their body protruding from cages and being caught by shaft timbers; four through accidents to cages whilst men were riding in them; one through a man falling off the ladder he was standing on; one through a man being struck by the chute door which he was lifting; four by men being struck by tools they were using; and three men received injuries through striking their hands against the shaft during their work.

Miscellaneous Underground.

Under the above classification 500 men received injuries of a more or less serious nature during 1916. In 131 cases the injuries were received while handling and loading skips and trucks, through fingers and bodies being jammed against chutes and other trucks, toes and feet run over, bodies struck by upsetting of trucks, men slipping and straining themselves while trucking, or lifting derailed trucks or material into trucks, and so on, the injuries being mostly wrenches, sprains, bruises, jars, fractures of fingers and toes, and cuts. In 141 cases the injuries were caused through falling and rolling loose rocks and stones, such as runs of ore and mullock, while shovelling, or stones running down rills and ore chutes, and 17 men received severe cuts and bruises while handling sharp stones. Thirty-eight were injured handling rock drills and coal-cutting machines and parts of same, and four by the stages on which machines were erected collapsing. Other falls in the workings from stages and ladders in rills and passes, and so on, caused injury to 18 persons, and 22 were hurt by falling tools and pieces of machinery. Flying splinters of stone and steel were responsible for 13 men being injured, and 17 were hurt while handling timber, while three men were injured through falling down ore passes. The remaining 96 cases were due to various accidental causes—jarring of hands and feet, blows from tools, strains, burns, and so on.

Surface (including Machinery).

Two hundred and sixteen accidents on surface were recorded during 1916. Ten men were burnt in various ways; 25 sustained injuries from falls in the course of their work; 25 were hurt by trucks and skips, by being jammed or struck by them, by them capsizing or by the men sustaining strains while working them. Flying splinters injured seven men, and five got their hands jarred. Falls of timber and pieces of machinery, while being handled, accounted for eight cases of injury. Twenty-seven cases were caused by machinery in motion, eight of these being caused by handling belts in motion. 36 men were hurt while handling timber, seven were struck by stones, and five men received injuries through falling from stages and ladders. Two men were kicked by horses, and one man fell off the dray he was driving in, while another man fell into a feed water tank. Other causes of 53 accidents were strains from lifting heavy weights, tools slipping and inflicting cuts and bruises, and so on. The majority of these accidents were accidental mishaps, but a few, no doubt, could have been preventable by greater care on the part of the workmen themselves.

WINDING MACHINERY ACCIDENTS

(without serious injury to persons).

The following are brief particulars of accidents to winding machinery, reported by the Inspectors of Mines under Regulation 11 of "The Mines Regulation Act, 1906":—

Overwinding.

At the Great Fingall G.M. ore was being raised from No. 17 bin, and whilst the north skip was being raised the indicator chain came off the wheel, but remained on the drum shaft and pulled the pointer around much slower than the wheel would have done, thereby showing a false position of the skip. As a result the skip struck the gin wheel, and broke the bearers. On examination the chain was found to have stretched, and a new one was put in. (2633/16.)

Through omitting to reset the indicator on changing from one level to another, an engine driver on the Yuanmi G.M. overwound the south cage, and the rope become detached. (1945/16.)

At the Bullfinch Proprietary G.M. an engine driver overwound the cage in the south compartment of the main shaft. No damage resulted. (250/16.)

While hauling from the No. 5 level of the Yuanmi G.M., an engine driver, through a misunderstanding of the signal, overwound the south cage,

which became hung up in the thimble and the rope was detached. (1406/16.)

At the Kalgurli G.M. an engine-driver overwound the north skip in the main shaft; the side grippers acted; the rivet was sheared and the rope fell to the ground, no other damage resulting. (1269/16.)

Two overwinds occurred in the Internal shaft at the Great Fingall Mine by the same engine-driver while hauling ore from the 17 feet level. On the first occasion, the overwind was due to the engine-driver momentarily forgetting from which level he was hauling. On the second occasion, the north skip struck the gin wheel bearers, and the indicator falsely showed the skip to be near the brace at surface. On examination, it was found that the indicator chain had come off the drum sprocket wheel, and was riding between the sprocket wheel and the drum. (171/17.)

At the Sand Queen G.M. an engine-driver overwound his engine, and the kibble struck the timber frame carrying the sheave. (131/17.)

At the Great Boulder Proprietary G.M. a skip was overwound through the exhaust cocks having been left closed by a fitter who had been making small repairs. (430/16.)

Accidents to Ropes.

The winding rope at the Fenian G.M. broke about 20 feet from the shoe. At the time of the accident a 280-gallon tank of water was being raised. On examination of the rope, it was found to be badly corroded inside. (80/17.)

Accidents to Skips and Cages in Shafts.

At the Sons of Gwalia G.M., two men entered the skip and gave the signal to lower them to the No. 21 level, the engine-driver, however, lowered them on to the pent-house, and one of the men, who was riding on the bridle, received minor injuries. (1412/16.)

At the Golden Horseshoe G.M., hauling operations were in progress at the main shaft, when the king-bolt broke near the 1,000 feet level, and the skip fell on to the pent-house under the 3,020 feet level. The actuating rods of the safety grippers were broken and the centres burst into the sinking compartment, and a few trucks of dirt fell into the shaft, where two men were working; they, however, luckily escaped injury. (3289/16.)

An engine-driver at the Youanmi G.M., neglecting to chair the cage, it got away and went down the shaft, pulling the rope off the drum and bending the shaft. The safety gear and brake failed to act. (1766/16.)

At the Youanmi G.M. an engine-driver omitted to release the cage from the chairs when pulling up the other cage, with the result that a quantity of rope became slack and was caught between the spur wheel and the pinion, crushing the rope badly; no other damage was done. (1240/16.)

Two accidents to winding machinery occurred in the Great Boulder Perseverance G.M. On the first occasion, the engine-driver heard a loud crack whilst hoisting, and on investigation, found that the drum had cracked owing to excessive play in the clutch jaws. On the second occasion, the skip hung up in the south compartment, just above the 200 feet level and caught in the wall plates; the safety hook broke and released the rope. No damage was done to the skip or rope, but three wall plates were broken. (2179/16.)

Miscellaneous.

At the Oroya Links G.M. the engine-driver lost control of the engine, and the north cage fell to the 300 feet level, knocking away the bearers at the 200 feet level in passing. No other damage resulted. (722/16.)

At the South Kalgurli G.M., the left-hand drum broke whilst winding was in operation. (430/16.)

At the Baddera Lead Mine a tank full of water was being hauled to surface, when the rope slipped off, causing the flange of the inner drum to break. (48/17.)

At the Great Fingall G.M. the eccentric strap was broken through the bottom strap bolt nut working out causing the bolt and distance piece to fall out. (170/17.)

A heavy log of timber was being lowered down the main shaft of the Great Fingall G.M. when it broke away from the skip and fell down the shaft, knocking out several shaft timbers. (169/17.)

While hauling a skip in the main shaft of the Great Boulder Perseverance G.M. the safety-hook broke and released the rope, which fell to the ground. (2293/16.)

One of the shackles attached to the safety-hook on the north skip at the main shaft of the Great Fingall mine canted and opened up, thereby releasing the rope. No damage resulted. (1513/16.)

INVESTIGATION OF ACCIDENTS BY MINE STAFF.

Consideration of the accident records for the year always brings up the question of what can be done to lessen the number of such occurrences. In this connection it has to be remembered that the seriousness or otherwise of the injuries sustained through any mishap is not the best guide as to the seriousness of the nature of the accident. The extent of the personal injuries sustained is very greatly a matter of luck; sometimes a man is killed in the course of operations which usually are regarded as very safe, and at other times men are fortunate enough to escape injury altogether in cases where a fatal result would seem inevitable. A matter of an inch or two in a man's position may make all the difference to him of being killed or escaping altogether, or of his injury being serious or slight. For the purpose of investigating the conditions under which mining accidents take place, therefore, instances of narrow escapes and accidents of minor nature may be equally informative as fatal accidents.

A system has been instituted in some of the mines of the United States in recent years, under the "Safety First" movement, whereby in large mines conferences of the whole mine staff are held at regular intervals, not less frequently than monthly, for the set purpose of discussing all the cases of accidents which have occurred in the mine since the previous meeting, and devising means to prevent any recurrence of similar cases. Mishaps which occurred without any person being injured, but which might have caused injury to persons, are also discussed as well as the cases wherein men were hurt. Where this system has been carried out with a firm resolution on the part of all concerned that accidents must be prevented, it is claimed that very excellent results have

been obtained, with great advantage, not only to the men employed, but also financially to the mine owners. The discussions serve to keep constantly before all members of the staff their duty to do all that is possible to prevent accidents, and to be always on the look-out to foresee where accidents might happen unless precautions are taken. It is not sufficient to leave this to the Government Inspectors of Mines, for vigilance must be continuously exercised by every man in any position of authority in the mine, as well as by the individual miners, if accidents are to be minimised.

In some of the United States mines a system of payments has been devised, whereby shift-bosses receive from time to time a greater or less bonus in addition to their regular pay according as the part of the mine in their charge shows a decrease in the tale of accidents. The fewer the accidents the greater the bonus. This system seems well worth attention here also from the management of the larger mines.

PROSECUTIONS FOR BREACHES OF THE MINES REGULATION ACTS AND REGULATIONS.

During the year 1916 proceedings were instituted against nine men, but two of these charges were dismissed. Brief particulars of each case are as follows:—

General Rule 32 (3*u*.).

A miner was proceeded against at the Golden Horseshoe G.M. for neglecting to warn the men working in the vicinity that he had fired a charge. The case was struck out owing to a technicality. (2848/16.)

Section 32.

At the Hannans Star G.M. a man was found carrying five plugs of dynamite in his shirt; he was fined £2 and costs for neglecting to use the cannister provided by the management. (676/16.)

For neglecting to fence the brace of the shaft, the manager of the Oroya Links G.M. was fined £5 and costs. (584/16.)

A miner carried a bottle of liquor into the Baddera Lead Mine and became intoxicated and quarrelsome. Whilst in this state he assaulted the Holman Hoist driver and took charge of the hoist. Action was taken and he was fined £5 with £4 1s. costs. A new regulation has been framed making it an offence for men to carry liquor into a mine. (2908/16.)

Section 32, *Subsection* 9.

At the Queen of the Hills G.M. a miner, while spalling stones, received serious injuries from a fall of stone from the back. Just previous to the fall the man drew the attention of the underground boss to its condition, but no steps were taken to pull it down or make it safe. The manager of the mine was therefore proceeded against, but the case was dismissed for want of sufficient evidence; the injured party having left the district. (488/16.)

Section 57.

At the Great Boulder Perseverance G.M. proceedings were taken against a miner for neglecting to give the men in the vicinity proper warning that firing was in progress. He was fined £7 10s. with 15s. costs. (399/16.)

Two men were proceeded against at the Lake View and Star G.M. for neglecting to warn another miner that firing was in progress. These men were left to guard the level, and should have prevented anyone from proceeding along it till the shots had exploded. A fine of £5, with costs, was inflicted in each case. (1955/16.)

Regulation 19.

At the Great Boulder Perseverance G.M., one of the miners neglected to use the water provided for suppression of dust and was therefore proceeded against, and fined £2 with costs. (3264/16.)

EXEMPTIONS FROM SECTION 31, UNDER SUBSECTION 4 OF "THE MINES REGULATION ACT, 1906."

During 1916 the Hon. the Minister approved of exemption certificates being issued to 17 men on mines where, for various reasons, it was impracticable to employ certificated engine-drivers. Before recommending these certificates the Inspector of Mines calls for a practical demonstration on the part of the applicant to show whether he is capable of handling the machinery to which the exemption applies. Lowering or raising men is not allowed under these exemptions. Holders of these exemption certificates are required to present themselves for examination for at least a third-class engine-driver's certificate before a renewal of the exemption will be approved.

SUNDAY LABOUR IN MINES.

During the year under review 29 Sunday Labour Permits were issued to various mines for the performance of certain work in the mines which could not be carried on during the week, such as removing material out of the way of rising water, constructing ladderway, clearing out the main sump, bailing water from main shaft, etc., etc., or other work which would cause loss of employment to portion of the working force of the mine if it had to be carried out during week-days.

AMENDMENTS AND ADDITIONS DURING 1916 TO THE REGULATIONS UNDER "THE MINES REGULATION ACT, 1906," AND "THE MINES REGULATION AMENDMENT ACT, 1915."

Surveys of Mines.

Alteration of mine survey regulations. Gazetted 19th January, 1916 (3826/12) and 5th April, 1916 (751/16).

District and Workmen's Inspectors of Mines.

Additional Regulation No. 15 relating to appointment of District and Workmen's Inspectors of Mines. Gazetted 15th March, 1916 (2400/09).

Rates of pay to Workmen's Inspectors of Mines. Gazetted 12th July, 1916 (1778/16).

Inspectors of Mines' Districts.

Amendment of Boundaries of Swan Mining District. Gazetted 14th April, 1916 (1971/14); 26th May, 1916 (1971/14).

Proclamation of Kendinup Mining District. Gazetted 23rd June, 1916 (1865/13).

Proclamation of Roelands Mining District. Gazetted 14th July, 1916 (1971/14).

Amendment of Inspectors of Mines' Districts. Gazetted 20th September, 1916 (2101/16).

Winding Engines.

New Regulation 42 relating to Testing Winding Engines after repairs. Gazetted 27th October, 1916 (849/16).

PHILLIPS RIVER SMELTING WORKS.

Report of the Manager, Mr. Richard Shepherd, dated 12th June, 1917:—

"I have the honour to submit the following report on the working of the State Smelter at Ravensthorpe for the year 1916.

"For convenience in cost keeping and the more expeditious distribution of the proceeds of metals sold, the year's work was divided into two campaigns, which are the third and fourth since the beginning of smelting under departmental control in July, 1914.

"During the former run (March-June) 3,358 tons of ore and concentrates were treated, and blister copper containing 231.22 tons pure copper, 2,042 ounces silver, and 2,272.7 fine ounces of gold were produced.

"For the fourth campaign (August-December) the figures were 3,411 tons ore and concentrates treated, and the resulting blister contained 244.42 tons pure copper, 2,501 ounces silver, and 3,104.1 ounces fine gold.

"The concentrating mill was employed throughout the year cleaning up the dumps of low-grade sulphides which had accumulated on the field and which, with the high price of copper, had become profitable. The mill was running 217 days, day-shift only, and put through 5,924 tons of crudes, mainly from the Elverdton, Desmond, and Cattlin dumps, producing 1,502 tons of concentrates which were valuable to the furnace as basic flux and contributed 110.87 tons pure copper and 143 ounces fine gold to its output.

"Owing to the war, and the consequent difficulties of shipping and selling the Works' output, no settlements of weights, assays, and prices were possible during 1914 and 1915. But during the year under review final payments on the first and second campaigns have been made. Those for the third campaign were completed in February, 1917, and the figures for the fourth campaign are now so far advanced that the commercial results of the three years' working since the start of the venture are now available.

The smelting results were as follows:—

		—	Ore Smelted.	Copper Recovered.	Silver Recovered.	Gold Recovered.
			tons.	tons.	fine ozs.	fine ozs.
1-1-14	30-4-15	First Campaign	7,950·80	641·559	5,990·47	4,891·900
1-5-15	31-12-15	Second Campaign	4,931·04	309·031	2,676·73	3,227·237
1-1-16	30-6-16	Third Campaign	3,358·34	231·222	2,042·89	2,272·707
1-7-16	31-12-16	Fourth Campaign	3,411·28	244·424	2,501·09	3,104·108
			19,651·46	1,426·236	12,511·18	13,495·952

"This shows an average recovery of 7.14 per cent. Cu., 12½dwts. Ag., and 13½dwts. Au. per ton of ore and concentrate smelted, and in a measure compensates for the relatively small ore output of the Phillips River Field.

"The gradual rise shown in gold recoveries is due to the superiority of smelting, as a process for winning that metal from the Kundip end of the field, as the water level is approached, over the former treatment by battery and cyanide.

"The monetary results of treating and marketing the foregoing metals were as follows:—

—	Advances against Ore, on delivery at Works, by assay.	Cost of treatment, realisation, interest, and repayment of preliminary expenses renovating Works.	Interim and Final payments on Ore.	Gross proceeds from Sale of Metals.	Percentage of gross proceeds available for distribution.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	%
First Campaign ..	23,985 12 0	40,440 3 9	14,399 0 0	78,824 15 9	48·7
Second Campaign ..	10,601 10 8	30,686 18 5	15,544 17 8	56,833 6 9	46·1
Third Campaign ..	10,216 18 5	23,125 15 9	6,351 3 4	39,693 17 6	41·8
Fourth Campaign ..	13,717 12 4	22,539 11 9	5,763 4 8	42,020 8 9	41·3
	£58,521 13 5	116,792 9 8	42,058 5 8	217,372 8 9	46·3

"The advances in the first column may be taken as roughly representing the cost of mining and delivering the ore to the works, while the £42,058 5s. 8d. divided amongst the ore-sellers in final settlement for same, as shown in the third column, is practically the profit resulting from the sale of the recovered metals after deducting the cost of treatment, marketing and repayment of all expenses incurred by the Department in starting and managing the business.

"The difficulty of marketing the Works' output during the first 18 months operation necessitated the locking up of far more capital than was originally expected; but the ultimate advantage of obtaining

the abnormal price of copper ruling since the close of 1915 more than compensated for the delay.

"As the ores purchased were mainly won from small and scattered ore bodies, without machinery and under primitive mining conditions, the financial results have been satisfactory to the ore-sellers, and of considerable indirect benefit to other Government Departments and the industries of the district."

ADVANCES ON ORES.

A considerable number of parcels of copper, antimony, and bismuth ores have been received from prospectors and others, and sent to market by the Department under the Advances on Ores scheme. These advances and the facilities provided by the Department to enable ores to be disposed of to best advantage have been of much service to a large number of prospectors who otherwise would not know how to set about getting a market for their ores. The results are tabulated hereunder:—

1916.	No. of Parcels.	Advances.	Balances paid on receipt of Proceeds.	Total realised by Owners.
		£ s. d.	£ s. d.	£ s. d.
Copper	31	3,221 0 0	3,636 7 10	6,857 7 10
Lead	15	499 19 3	1,548 1 0	2,048 0 3
Bismuth	3 } 8	550 0 0	286 9 7	836 9 7
Antimony ..	5 }			
Total ..	54	4,270 19 3	5,470 18 5	9,741 17 8

Several other parcels of ore have been shipped by the owners directly to the various smelting works, it being the policy of the Department to encourage them to do so as soon as they can. Once the way has been made smooth for them to send on their ores there is no longer need for any assistance from the Government. The above figures show that the system of assisting prospectors in this way has quite justified its being undertaken.

LOANS AND SUBSIDIES UNDER THE MINING DEVELOPMENT ACT AND MINING DEVELOPMENT VOTE.

The usual appendix giving particulars of each of the transactions under the above heading has been omitted on this occasion owing to the necessity to economise in printing. The usual tables, however, showing the transactions in tabulated form are appended.

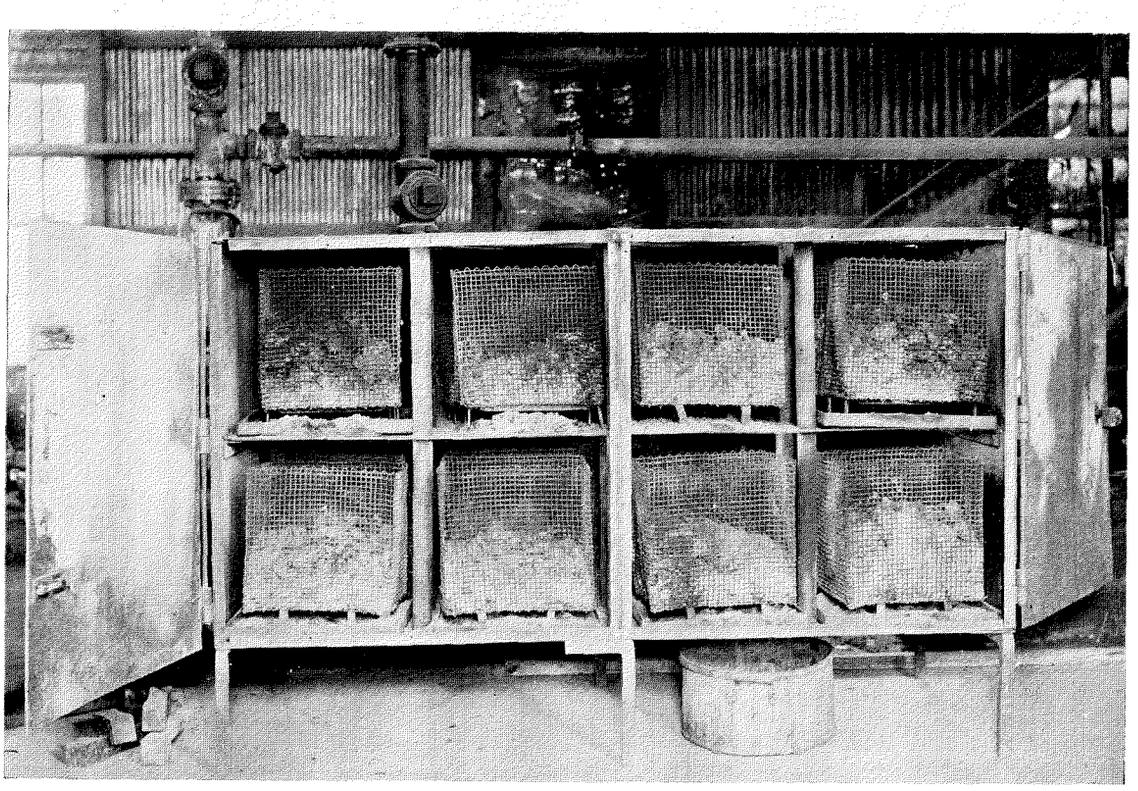
CHARCOAL PRECIPITATION OF GOLD FROM CYANIDE SOLUTIONS.

Appended hereto is a very interesting description by Mr. H. G. Walton of the charcoal precipitation method in use at the Yuanmi Gold Mine, with some additional notes by Mr. R. C. Wilson, now Inspector of Mines, Perth, who was formerly on the staff of the mine.

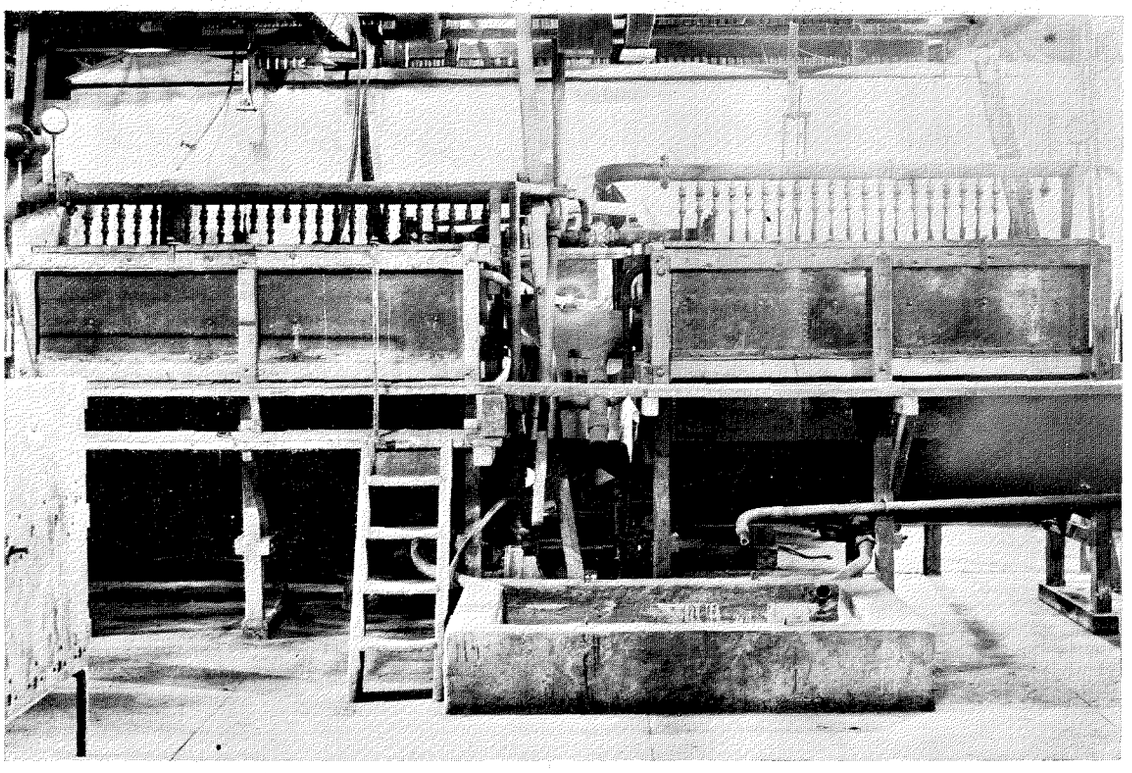
I have, etc.,

A. MONTGOMERY,

State Mining Engineer.



Charcoal Precipitation of Gold—Yuanmi Gold Mines, Ltd. Charcoal-burning Chambers.



Charcoal Precipitation of Gold—Yuanmi Gold Mines, Ltd. Vacuum Filters.

APPENDIX 1.

CHARCOAL PRECIPITATION OF GOLD-BEARING CYANIDE SOLUTIONS.

By H. G. WALTON.

Precipitation of gold-bearing cyanide solutions by means of powdered charcoal was adopted at the Yuanmi mine after exhaustive laboratory experiments.

The first stage in the process is the preparation of the charcoal. The best results are obtained from charcoal recovered from the water seal of a downdraft gas-producer in use on the mine, in which local mulga is used as fuel. This charcoal is a waste product. The precipitating agent in charcoal is occluded gas. Quenching while red hot produces the best results, and probably the reason the waste gas-producer charcoal has given the highest recovery of gold, per lb. of charcoal used, is that a large amount of gas is drawn through the char in the hearth of the producer before the particles drop red hot into the water seal. The charcoal is washed free of ash in a cradle arrangement, in a tank of water, and the clean product is placed in a cylindrical mill and crushed, in one-third its weight of water, with steel balls for about eighteen hours. The degree of fineness to which charcoal should be crushed must be determined by comparative precipitation tests; all must pass through a 150 mesh screen (I.M.M. Standard). Experiments have shown that wet crushed charcoal has five times the precipitating power of dry crushed charcoal, and the finer particles have a greater efficiency than the coarser particles, even of 150 mesh product.

The charcoal sludge is fed into three Moore-Edmonds precipitation units by means of a centrifugal pump. The precipitation units are equipped with filter frames of the vacuum type, spaced 4in. centres; and agitation of cyanide solution, which gravitates to the units, and of the charcoal sludge, is effected by propellers attached to a spindle which revolves in the lower portion of the precipitation unit at 190 revolutions per minute. The units are charged with about 300 lbs. of charcoal sludge (dry weight). Before cake forming is started the pulp is thoroughly agitated by the propellers. To prevent channelling, while the process is going on, the vacuum is periodically shut off, the cakes dropped, and the sludge thoroughly agitated.

The capacity of charcoal to precipitate gold soon decreases. The process is therefore carried on in two or more stages. The cyanide solution drawn off from the first unit is delivered by the vacuum pump to a storage tank, whence it flows to the second precipitation unit, and so on to a third unit if necessary. When the charcoal in the first unit has lost its power for rapid precipitation the charcoal in the second unit is still little impaired. The flow of solutions is then reversed, and the maximum precipitating power from a given quantity of charcoal obtained. The following is a typical day's run:—

Head value of solution—20/3 per ton (2,000 lbs.).
Tail value of solution from 1st unit—6/7 = 67.5 per cent. precipitation.
Tail value of solution from 2nd unit—0/9.5 = 96.1 per cent. precipitation.
Tail value of solution from 3rd unit—Trace = 99.9 per cent. precipitation.

The amount of gold precipitated per ton (2,000 lbs.) of mulga charcoal averages about 770 ozs.

There is never any trouble in passing all the solutions from the plant through the precipitating units; their capacity has not been definitely ascertained, but exceeds 300 tons daily.

When the precipitating power of the charge in the units is nearing exhaustion, as indicated by assay, the plant is cleaned up. A charge lasts from ten to twenty days, according to the amount of gold contained in the solutions passing through the units. Precipitation is not directly proportional to value of solutions, but rich solutions more speedily exhaust the power to precipitate rapidly. To clean up, the vacuum is released, the cakes dropped and emulsified by the propellers. The sludge is run into a concrete tank beneath the units and the moisture removed in a clean-up press of the ordinary type. While damp enough still to be adhesive the precipitate is placed in lumps in braziers constructed of strong wire screening, ¼in. aperture, and burned to an ash, a process which takes about a day and a-half and is carried out in a lock-fast chamber. There is practically no loss by dusting or volatilisation. The ash which remains to be smelted amounts to about one-third of the weight of charcoal fed into the units.

There is no trouble in smelting the ash with the usual fluxes, and the wear on crucibles is much less than from zinc precipitate. The smelted gold, without refining, is remarkably pure. From clay-lined pots gold worth £4 2s. 6d. per oz. is obtained, and from graphite pots the gold is worth about £4 1s. per oz. Using zinc as a precipitant the bullion produced from the same ore, after considerable refining, could only be brought up to from £3 8s. to £3 12s. per oz. The finer gold obtained from charcoal effects a considerable saving in bank and mint charges.

Prior to the use of charcoal as a precipitant this section of the treatment plant was a constant source of anxiety. The trouble in precipitation arises from the presence of antimony and arsenic in the ore. With the ordinary zinc shaving as a precipitant, tail solutions from the boxes were most erratic, and at times alarmingly high. Experiments indicated that better work would be obtained from zinc used as a powder, and to carry out the work cheaply and effectively the mine metallurgists, Messrs. K. Byron Moore and H. R. Edmonds, designed the precipitation units now in use. The use of charcoal was evolved by the same gentlemen as a war time economy. The process has been in operation for about a year, and has proved a complete success metallurgically and financially. At the present price of zinc the saving effected is about 1s. per ton of ore treated. A further saving has been brought about by the lowering of the final residual value of the ore, as box tail solutions from zinc boxes, part of which are lost, could never be reduced to the figure now obtained by charcoal precipitation.

NOTES BY R. C. WILSON.

There is one other advantage about the process which is worth mentioning, and that is the whole of the charcoal in a precipitation unit is burnt and any shortage of gold can be immediately detected, whereas when a zinc box is cleaned up portion of the zinc carrying gold is put back into the box, and as it is not an easy matter to determine just how much gold has been put back a shortage in gold is not readily detected. The clean-up is much simpler and cheaper than the clean-up of an ordinary zinc box. This will be clear from the following comparison:—

Clean up of Zinc Box.—1, Take out all zinc from the boxes, clean out boxes, and put back portion of the zinc and send remainder to acid tubs. 2, Add sulphuric acid till all zinc attacked. 3, Siphon off acid; wash and dry zinc slime. 4, Roast slime. 5, Flux and smelt.

Clean up of Charcoal Dust.—1, Run out charcoal sludge and dry sufficiently to make into balls. 2, Burn charcoal balls (these burn quite readily). 3, Add flux to ash and smelt.

The advantages of charcoal dust precipitation may be summarised as follows:—

Charcoal costs little or nothing; no acid is required; purer gold is obtained; any shortage in gold is readily detected.

APPENDIX 2.

SUMMARY OF EXPENDITURE FROM MINING DEVELOPMENT VOTE FROM 1ST JANUARY, 1916, TO 31ST DECEMBER, 1916.

Mine or Owner.	Mining Centre.	Amount.	Total.
		£ s. d.	£ s. d.
A.—Advances in Aid of Mining Work and Equipment.			
Mt. Germatong Lease	Leonora	34 19 5	
Elliot & Richards	Kalgoorlie	92 15 5	
W. A. McHugh	Lawlers	328 9 8	
Auckland G.M. Syndicate	Leonora	29 10 0	
Eastern G.M. Syndicate	Lawlers	141 10 0	
Hanby & Lugg	Kalgoorlie	100 0 0	
"Glideaway" Gold Mine	Southern Cross	140 0 0	
"Premier" Coal Mine	Collie	500 0 0	
"Globe" Gold Mine	Meekatharra	0 10 0	
		1,367 14 6	
Less Repayments Credited to Vote—		£ s. d.	
Auckland G.M. Syndicate	Leonora	29 10 0	
Eastern G.M. Syndicate	Lawlers	53 12 0	
W. J. Cumming	Boogardie	1,000 0 0	
"Premier" Coal Mine	Collie	0 3 2	
"Globe" Gold Mine	Meekatharra	0 10 0	
"Creme D'Or" G.M.	Day Dawn	0 10 0	
		1,084 5 2	
			283 9 4
B.—Advances in Aid of Erection and Equipment of Batteries for Public Crushings.			
J. P. Garland	Holden's Find	500 0 0	
Juett & Party	Cue	348 17 7	
Atkinson & Son	Marda	285 6 5	
			1,134 4 0
C.—Boring.			
Mt. McMahon	Mt. McMahon		119 2 5
D.—Miscellaneous Expenditure.			
Rebates *re* Water Supply		86 18 8	
Lease of Marda tank		180 0 0	
Preliminary Investigations—Sampling Mines		161 15 6	
			428 14 2
Rebates to Prospectors crushing at State Batteries (War Rates)		948 16 9	
Less Credits—			
Refund Amount overpaid		0 1 0	
			948 15 9
Subsidies Carting long distances to Batteries.			
Murphy, C.	Southern Cross	15 3 3	
"Boni Venture" G.M. Co.	Mt. Singleton	25 0 0	
Clifford, D.	Edjudina	1 13 0	
Brewer, D.	do.	9 3 0	
Delaney, E. W.	do.	1 4 0	
Thomas, Jas.	do.	1 7 0	
Robertson, A. B.	do.	15 9 0	
			68 19 3
Assistance Establishing Battery at Bangemall			55 4 0
Subsidies to Batteries—Crushing for the Public.			
Santa Claus G.M. Co. 90 tons	Randall's	6 15 0	
Gem G.M. Syndicate 77½ „	Kundip	7 15 0	
Lang, S. C. 940½ „	Golden Valley	189 9 0	
Buhlmann, F. T. 655 „	Mulgarrie	65 10 0	
Branson, H. 1,000 „	Lawlers	100 0 0	
Trude, F. B. 176 „	Ruby Well	17 12 0	
Willis, F. W. 65 „	Lawlers	6 10 0	
Johnson, H. F. 20 „	Pingin	1 10 0	
Stuckey, N. S. 1,756½ „	Carrabin	175 13 0	
Graham, S. 46 „	Southern Cross	3 9 0	
Patterson, W. A. 272½ „	Parker's Range	13 12 6	
Hastedt, R. and party 228 „	Leonora	17 2 0	
Spicer, John 46 „	Tampa	3 9 0	
Mandelstam, A. S. 248½ „	Edjudina	18 12 9	
			626 19 3
Subsidies Development Work.			
Bennett, E. A.	Coolgardie		64 6 3
Providing Transport for Prospectors.			
Purchase of Horses, Camels, etc.		338 3 11	
Less Credits—		£ s. d.	
Refund overcharge Camel hire		8 11 5	
Refund S. Mortimer, Rail fare		2 0 7	
		10 12 0	
			327 11 11
McIntyre Prospecting Expedition		235 15 10	
Less Credit—Refund Railway fare		0 19 3	
			234 16 7
Total (according to net Treasury figures for year)			**£4,292 2 11**

SUMMARY OF EXPENDITURE FROM MINING DEVELOPMENT VOTE, ETC.—*continued.*

Mine or Owner.	Amount.	Total.
	£ s. d.	£ s. d.
Advances Refunded.		
Auckland Gold Mining Company	29 10 0	
Cumming, W. J.	1,000 0 0	
"Premier" Gold Mine	1 1 10	
"Globe" Gold Mine	83 10 0	
"Eastern" Gold Mine	141 10 0	
Allsop & Don	1,000 0 0	
Atkinson and party	17 16 2	
"Comstock" Gold Mine	6 15 0	
"Balkis" Gold Mine	97 4 5	
Buhlmann, F. T.	30 14 6	
Mandelstam, A. S.	8 13 9	
Burt and others	14 5 0	
Neil McNeil	1,498 17 10	
		3.929 18 6
Recovered from Sale of Securities.		
"Ivanhoe Venture" Gold Mine	20 12 2	
"Hornsby" Gold Mine	250 0 0	
"Maori Lass" Gold Mine	152 16 6	
"Chunderloo" Gold Mine	58 19 5	
"Riverina" Gold Mine	468 19 10	
Cairns, J., "Creme D'Or" Gold Mine	219 15 6	
Lubra Queen	127 1 0	
Clayton, L. F.	11 0 3	
Matthews, A.	47 13 1	
Sperring, E.	6 0 0	
"Never Never" Gold Mine	400 8 8	
"Vs United" Gold Mine	30 0 0	
"Morning Star" Gold Mine	30 0 0	
		1,823 6 5
Miscellaneous Refunds.		
Boring Fraser's Gold Mine	50 0 0	
Payne's Find Development Co., on account Pipe Line	24 18 0	
Refund Overpayment Account (War Rebates)	0 1 0	
Prospecting Refund Rail Fares and Camel Hire	18 3 9	
Sampling Mines	10 18 3	
		104 1 0
Total (inclusive of refunds shown in foregoing table credited to M.D. Vote; balance having been paid to Government Property Sales Fund Receipts)	..	£5,857 5 11

THE MINING DEVELOPMENT ACT, 1902.

ADVANCES WRITTEN OFF TO 31st DECEMBER, 1916.

	£ s. d.
Previously reported (1914 Annual Report)	16,366 4 1
Year 1915	*Nil*
Year 1916	*Nil*
Total	£16,366 4 1

MINING DEVELOPMENT EXPENDITURE.

Advances outstanding 31*st December*, 1916.

No. of File.	Name of Lease, Mine, or Borrower.	No. of Lease.	District.	Amount Authorised.	Principal Moneys Advanced.		Principal Moneys.		Interest.		Total Principal and Interest outstanding at 31st December, 1916.
					Previous to 1916.	During 1916.	Repaid, including Sale of Securities, etc.	Balance Outstanding.	Paid.	Outstanding.	
	A.—Pioneer Mining and Prospecting.			£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
90/12	Alicia	254F	Mt. Morgans	245 0 0	195 0 0	..	..	195 0 0	4 2 6	54 14 8	249 14 8
854/14	Auckland	1473C	Leonora	140 0 0	..	29 10 0	29 10 0	..	0 6 7	..	..
909/12	Brittania	953M	Mt. Magnet	150 0 0	114 12 6	..	37 0 0	77 12 6	..	9 4 6	86 17 0
3016/11	Balkis	8354Z	Menzies	300 0 0	266 0 0	..	104 17 5	161 2 7	58 2 9	4 15 6	165 18 1
2257/12	Champion South	817N, 1039N	Nannine	400 0 0	400 0 0	..	350 0 0	50 0 0	29 11 8	19 19 8	69 19 8
3323/08	Coolgardie P.D. and Mining Syndicate	4093, 4117	Coolgardie	1,500 0 0	904 10 5	..	110 0 0	794 10 5	19 19 10	67 16 9	862 7 2
1986/10	Coolgardie Redemption	3918, 4052	do.	1,020 16 9	1,020 16 9	..	220 18 0	799 18 9	..	73 2 8	873 1 5
2334/12	Creme D'Or	389, 421, 4220	Day Dawn	1,001 0 0	1,001 0 0	..	768 16 3	232 3 9	149 9 3	34 14 5	266 18 2
427/11	Comstock	1079Y	Randall's	200 0 0	144 7 6	..	6 15 0	137 12 6	7 0 1	7 1 6	144 14 0
29/05	Dostmund	788R	Yerilla	360 0 0	360 0 0	..	143 1 1	216 18 11	10 1 11	5 9 9	222 8 8
1444/12	Eclipse	1047X	Gindalbie	498 19 1	498 19 1	..	252 5 0	246 14 1	62 8 11	..	246 14 1
2208/08	Elverdton	..	Ravensthorpe	3,500 0 0	3,498 17 10	..	1,498 17 10	2,000 0 0	227 10 8	90 0 1	2,090 0 1
3166/09	Emily	1510	Day Dawn	400 0 0	372 1 9	..	..	372 1 9	..	44 7 10	416 9 7
624/11	Glideaway	2272	Yilgarn	200 0 0	..	140 0 0	..	140 0 0	2 18 0	3 11 5	143 11 5
3594/09	Globe G.M.	912M	Nannine	500 0 0	444 12 9	..	127 1 11	317 10 10	69 9 1	8 8 9	325 19 7
838/13	Griffiths G.M.	4048	Coolgardie	334 2 0	334 2 0	..	..	334 2 0	..	5 4 10	339 6 10
4689/06	Havilah Development	345B	Black Range	600 0 0	553 2 1	..	65 10 0	487 12 1	45 6 8	50 16 9	538 8 10
3786/12	Hanley & Lugg	..	Kalgoorlie	30 0 0	30 0 0	100 0 0	52 13 8	77 6 4	1 18 6	2 1 6	79 7 10
4738/09	Hawk	725G	Desdemona	116 12 2	116 12 2	..	19 15 11	96 16 3	3 7 10	..	96 16 3
319/12	Jupiter	771M	Mt. Magnet	401 0 0	401 0 0	..	109 14 1	291 5 11	5 0 0	45 11 3	336 17 2
2255/11	Kalgoorlie North End Development Co.	3380, 4146E	Kalgoorlie	1,500 0 0	1,500 0 0	..	25 0 0	1,475 0 0	20 11 3	41 11 7	1,516 11 7
1101/09	Kanowna Prospecting Co.	323X	Kanowna	750 0 0	666 9 3	..	7 0 0	659 9 3	..	..	659 9 3
2825/07	Kingdom Come	M.L. 112	Northampton	204 14 0	204 14 0	..	..	204 14 0	5 8 6	15 11 0	220 5 0
4548/11	Klondyke Boulder	604	Warrawoona	1,000 0 0	999 10 7	..	88 5 6	911 5 1	34 5 4	150 12 7	1,061 17 8
2186/14	Kirkland, A. G.	Mach. A. 12N	Nannine	500 0 0	500 0 0	..	256 14 5	243 5 7	20 17 4	12 12 5	255 18 0
1035/10	Kineen, Bower, and others	625B	Black Range	100 0 0	86 6 6	..	..	86 6 6	..	2 13 0	88 19 6
363/06	Lady Florence	1265	Cue	1,000 0 0	1,000 0 0	..	..	1,000 0 0	..	259 19 9	1,259 19 9
3751/10	Lubra Queen	734/5, 744, 749G	Kookynie	1,500 0 0	1,500 0 0	..	603 7 8	896 12 4	3 16 10	166 19 10	1,063 12 2
3507/13	Loader & Nevill	711	Yalgoo	200 0 0	135 0 0	..	..	135 0 0	11 2 4	3 8 8	138 8 8
2167/14	Lake View Extended	4536E	..	1,050 0 0	800 0 0	92 15 5	..	892 15 5	..	31 12 11	924 8 4
3444/10	Mars	1013	..	1,000 0 0	1,000 0 0	..	1,000 0 0	..	..	..	..
4000/05	Mindeloo	1518	Mindoolah	300 0 0	198 17 0	..	10 0 0	188 17 0	..	8 1 1	196 18 1
278/12	Morning Star	4484E	Boulder	368 0 0	284 19 4	..	105 0 0	179 19 4	..	6 8 9	186 8 1
2549/14	Mt. Germatong	1481C	Mt. Magnet	100 0 0	..	34 19 5	..	34 19 5	..	..	34 19 5
2126/11	Maori Lass	2416	Yilgarn	600 0 0	600 0 0	..	152 18 11	447 1 1	30 0 0	57 3 9	504 4 10
4164/12	Metzke and others	P.A. 647	Lake Darlot	200 0 0	189 7 6	..	6 9 5	182 18 1	1 19 7	23 0 5	205 18 6
3461/08	North End Mines	4054, 4037, 4039, 4231	Kalgoorlie	1,000 0 0	436 10 0	..	..	436 10 0	..	..	436 10 0
3292/13	Pearl	1095M	Meekatharra	76 0 0	76 0 0	..	..	76 0 0	..	7 14 4	83 14 4
3573/12	Princess Royal	106, 187, 587, 840, 972	Norseman	2,000 0 0	2,000 0 0	..	..	2,000 0 0	..	367 7 4	2,367 7 4
2898/11	Princess Royal	222, 653, 1016, 1048, 1114	Cue	1,000 0 0	1,000 0 0	..	3 10 0	996 10 0	80 0 0	14 16 8	1,011 6 8

3612/15	Premier Coal Mining Co., Ltd. ..	260/1/2, 263/4 5/6, and 271	Collie	500 0 0	332 1 0	167 19 0	1 1 10	498 18 2	23 18 8	..	498 18 2
3409/12	Rupe and Young	Mach. Area ..	Nannine	848 17 5	848 17 5	..	500 0 0	348 17 5	..	24 13 5	373 10 10
1373/12	Riverina	123N	Mulgarrie ..	500 0 0	468 19 10	..	468 19 10	..	101 16 11	..	..
1240/12	Richards & Poole	1163	Lawlers	300 0 0	300 0 0	..	50 0 0	250 0 0	21 18 9	12 15 5	262 15 5
697/09	Sunbeam	1121X	Kanowna ..	1,038 4 4	1,038 4 4	..	899 14 0	138 10 4	116 16 8	45 13 9	184 4 1
3212/15	Sunset	.. .. ..	do. ..	500 0 0	500 0 0	..	..	500 0 0	..	..	500 0 0
499/11	Do.	2253, 2240 ..	Southern Cross ..	100 0 0	90 0 0	..	5 17 0	84 3 0	..	..	84 3 0
977/12	South Cornwall	567	Greenbushes ..	1,170 2 0	1,170 2 0	..	26 0 0	1,144 2 0	..	..	1,144 2 0
2376/10	Stanley G.M.	1271X	Kanowna ..	150 0 0	112 0 0	..	..	112 0 0	2 6 0	20 18 10	132 18 10
2425/16	Try It	1188	Lawlers	328 9 8	..	328 9 8	..	328 9 8	..	3 11 3	332 0 11
2426/11	V's United G.M.	271F	Mt. Morgans ..	672 2 0	578 16 1	..	170 0 0	408 16 1	3 19 5	34 14 1	443 10 2
2239/12	Williamson & Pender	.. .. ..	Kanowna ..	180 0 0	180 0 0	..	..	180 0 0	7 0 0	12 18 1	192 18 1
4286/10	W.E.G. Gold Mine	505G	Niagara	500 0 0	297 13 1	..	..	297 13 1	..	89 10 4	387 3 5
2427/11	Westralia Tasmania	1665, 1745T ..	Erlistoun ..	300 0 0	300 4 9	..	51 0 0	249 4 9	90 2 8	40 1 9	289 6 6
1807/09	Wheal May	Loc. 6 ..	Northampton ..	302 4 6	302 4 6	..	40 0 0	262 4 6	5 15 9	14 9 8	276 14 2
				..	30,352 12 0	893 13 6	8,367 14 9	22,878 10 9	1,278 10 3	1,976 2 6	24,874 13 3
	B.—Assistance in Erecting Batteries and Treatment Plants to be used for Crushing for the Public										
2344/05	Allsop & Don	.. ..	Kalgoorlie ..	1,000 0 0	1,000 0 0	..	1,000 0 0	..	71 12 1	..	..
2120/09	Battlesville Mine	931R	Yundamindera ..	1,063 16 2	1,063 16 2	..	..	1,063 16 2	72 12 5	235 0 7	1,298 16 9
5651/10	Butcher Bird	1933OL ..	Yilgarn	1,560 17 9	1,560 17 9	..	17 16 2	1,543 1 7	132 3 10	80 16 4	1,623 17 11
	Do.	.. .. ..	.. .. ..	300 0 0	..	285 6 5	..	285 6 5	..	1 1 5	286 7 10
3145/12	Donovan's Find	768	Jacoletti ..	1,000 0 0	1,000 10 0	..	0 10 0	1,000 0 0	332 2 7	88 18 6	1,088 18 6
509/15	Eastern G.M.	1171	Murchison ..	300 0 0	..	141 10 0	141 10 0	..	3 15 5	..	..
3522/14	Gem Consolidated	151, 156 ..	Phillips River ..	300 0 0	300 0 0	..	..	300 0 0	18 4 2	7 16 5	307 16 5
3155/11	Great Victoria Leases	719, 944/5, 1229	Southern Cross ..	2,000 0 0	1,642 5 0	..	1 7 9	1,640 17 3	356 7 1	42 11 0	1,683 8 3
1343/07	Hodder, E.	Mach. Area 64	Randall's ..	253 3 2	253 3 2	..	148 13 0	104 10 2	6 8 4	35 11 3	140 1 5
2106/12	Johnson & party	1086/7/8 ..	Bulong	1,500 0 0	1,484 16 0	..	6 15 0	1,478 1 0	248 0 2	37 7 3	1,515 8 3
2322/11	King's Sound M. Co.	M.L. 146H ..	Derby	500 0 0	500 0 0	..	..	500 0 0	..	28 10 11	528 10 11
4475/11	Lady Pratt	1228X	Mulgarrie ..	205 4 10	205 4 10	..	156 16 0	48 8 10	40 1 11	2 10 11	50 19 9
3785/08	Lady Agnes	910Y	Bulong	486 12 3	486 12 3	..	93 4 9	393 7 6	..	27 7 5	420 14 11
3215/05	Langford, F.	910EM	Lawlers	800 0 0	585 17 0	..	29 7 0	556 10 0	64 4 3	14 4 3	570 14 3
4416/11	Malcolm Prospecting Co.	1175C	Malcolm	1,550 0 0	1,550 0 0	..	..	1,550 0 0	402 0 8	433 19 0	1,983 19 0
2985/13	Mandelstam, A. S.	1010R	Edjudina ..	200 0 0	200 0 0	..	13 14 5	186 5 7	10 16 10	9 9 5	195 15 0
363/12	McCahon and party	.. .. ..	Mt. Ida	400 0 0	400 0 0	..	..	400 0 0	..	27 14 5	427 14 5
15947/10	McDermott & Soanes	1084N	Nannine	2,032 12 8	1,730 10 2	..	58 19 5	1,671 10 9	..	218 16 2	1,890 6 11
4224/11	Never Never	665	Yilgarn	1,150 0 0	1,223 7 8	..	991 2 9	232 4 11	258 4 6	..	232 4 11
3911/10	Phœnix	622N	Quinn's	250 0 0	250 0 0	..	22 5 9	227 14 3	17 2 1	17 5 11	245 0 2
2325/11	Ravensthorpe Battery Co. ..	.. .. ..	Ravensthorpe ..	1,300 0 0	1,038 8 2	..	..	1,038 8 2	..	326 1 2	1,364 9 4
1353/10	Red, White and Blue	641B	Curran's Find ..	2,676 9 0	2,676 9 0	..	..	2,676 9 0	412 18 0	61 11 4	2,738 0 4
919/14	Rocklee G.M.	.. .. ..	Yaloginda ..	350 0 0	350 0 0	..	..	350 0 0	12 2 0	21 14 1	371 14 1
3551/10	Randwick	978C	Malcolm	584 14 0	577 3 5	..	43 4 6	533 18 11	..	45 3 5	579 2 4
4726/11	Southern Cross and Southern Cross S.	1067, 1067WR, and 27Y	Bulong	1,000 0 0	1,000 0 0	..	792 12 3	207 7 9	31 12 6	202 8 10	409 16 7
3362/11	Spring Hill	721	Parker's Range ..	655 16 5	655 16 5	..	19 2 0	636 14 5	202 15 4	138 11 8	775 6 1
4422/07	Star of Fremantle	645S	Kunanalling ..	325 0 0	320 10 0	..	0 10 0	320 0 0	32 3 7	42 4 11	362 4 11
1525/13	Thring Bros. & Dwyer	127	Northampton ..	2,050 0 0	2,028 2 9	..	..	2,028 2 9	31 11 7	199 11 8	2,227 14 5
3791/15	Triplicate G.M.	1914	Murchison ..	500 0 0	30 0 0	348 17 7	10 0 0	368 17 7	..	10 19 0	379 16 7
1301/15	Waterloo G.M.	1291N	Meekatharra ..	500 0 0	..	500 0 0	..	500 0 0	3 9 8	9 1 9	509 1 9
				..	24,113 9 9	1,275 14 0	3,547 10 9	21,841 13 0	2,760 9 0	2,366 9 0	24,208 2 0

MINING DEVELOPMENT EXPENDITURE—*Advances outstanding at 31st December,* 1916—continued.

No. of File.	Name of Lease, Mine, or Borrower.	No. of Lease.	District.	Amount Authorised.	Principal Moneys Advanced.		Principal Moneys.		Interest.		Total Principal and Interest outstanding at 31st December, 1916.
					Previous to 1916.	During 1916.	Repaid, including Sale of Securities, etc.	Balance Outstanding.	Paid.	Outstanding.	
	C.—Boring.			£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
	Mt. McMahon	.. .. ..	.. .. ..	..	223 19 5	119 2 5	..	343 1 10	..	..	343 1 10
	D.—Miscellaneous Advances.										
	Mararoa	.. .. ..	.. .. ..	..	394 4 3	..	..	394 4 3	..	..	394 4 3
	McCulloch	.. .. ..	.. .. ..	..	50 0 0	..	..	50 0 0	..	..	50 0 0
	North Baddera	.. .. ..	.. .. ..	..	40 0 0	..	..	40 0 0	..	..	40 0 0
	Payne's Find Development Co. ..	.. .. ..	.. .. ..	..	98 6 6	..	82 4 3	16 2 3	..	..	16 2 3
	Ryan, A. H.	.. .. ..	.. .. ..	..	100 0 0	..	..	100 0 0	..	..	100 0 0
				..	682 10 9	..	82 4 3	600 6 6	..	..	600 6 6
	A.—*Pioneer Mining and Prospecting*	.. .. ..	.. .. ..	..	30,352 12 0	893 13 6	8,367 14 9	22,878 10 9	1,278 10 3	1,996 2 6	24,874 13 3
	B.—*Assistance Erecting Batteries, etc.*	.. .. ..	.. .. ..	..	24,113 9 9	1,275 14 0	3,547 10 9	21,841 13 0	2,760 9 0	2,366 9 0	24,208 2 0
	C.—*Boring*	.. .. ..	.. .. ..	..	223 19 5	119 2 5	..	343 1 10	..	..	343 1 10
	D.—*Miscellaneous Advances* ..	.. .. ..	.. .. ..	..	682 10 9	..	82 4 3	600 6 6	..	..	600 6 6
				..	55,372 11 11	2,288 9 11	11,997 9 9	45,663 12 1	4,038 19 3	4,362 11 6	50,026 3 7

Annual Report of the Board of Examiners for Colliery Managers and Under Managers' Certificates under "The Coal Mines Regulation Act, 1902."

Office of the State Mining Engineer, Mines Department,
Perth, W.A., 5th April, 1917.

The Secretary for Mines, Perth, W.A.

Sir,

The Annual Report of the Board of Examiners for 1916 is submitted for the information of the Hon. the Minister for Mines.

Two ordinary meetings were held during the year.

Examination for Certificates.

No applications were received to sit for examination in response to advertisements in April and October, 1916.

We have, etc.,

A. MONTGOMERY,
State Mining Engineer, Chairman.

A. GIBB MAITLAND,
Government Geologist, Member.

R. McVEE,
Inspector of Mines, Member.

F. A. LANE,
Acting Secretary.

DIVISION III.

REPORT OF SUPERINTENDENT OF STATE BATTERIES.

Department of Mines,
State Batteries Branch,
Perth, 23rd May, 1917.

The Under Secretary for Mines.

Sir,—For the information of the Hon. the Minister for Mines, I have the honour to submit the following report on the work done at State Batteries for the year ending 31st December, 1916.

This report makes the 19th annual report on State Batteries operations.

MILLING.

At the commencement of the year there were thirty mills numbering 220 heads of stamps employed in crushing auriferous ores, but at the close, owing to the closing down of Menzies and Darlot, 28 mills were operating, comprising 17 5-heads and 12 10-heads, or 205 heads of stamps.

In addition Tuckanarra and Pingin mills were leased for the whole period.

Tonnage milled.—Seven hundred and thirty-seven parcels were treated at the different batteries, containing 47,304.25 tons, or an average of 64.18 tons per parcel (Schedule 5), as compared with 1,082 parcels with an average of 45.83 tons during 1915. The increased average tonnage per parcel is due to the large parcels treated at Wiluna. The total tonnage treated was 2,291.75 tons less than during 1915, or a falling off of 4.62 per cent., and Wiluna alone accounted for 14,762.5 tons, or 31.2 per cent. The paucity of tonnage offered for the year can be understood when the total time run inclusive of all stoppages (excluding Sundays) amounted to just under 20 per cent. of the time for which they were available, and without considering Wiluna, 14.75 per cent. (Schedules 1-5 and 8).

Duty per stamp.—Except in the case of Wiluna conditions of milling remained much the same as during 1915. At the above-mentioned place coarse crushing and secondary grinding per medium of a grit mill was carried out (on all except 422 tons of quartz), and a duty per stamp of 7.36 tons was maintained. At other batteries our 5-head plants containing our newest mills had a stamp duty of 4.32 tons and 10-heads 3.42 tons.

The stamp duty for all batteries was 4.39 tons for 24 hours, as against 4.01 tons during 1915.

The screens used remained the same, namely, 800 and 900 holes to the square inch.

Amalgamation.—All ores with exception of lode matter at Wiluna are treated by amalgamation, and it is pleasing to have to report that the percentage of the gross contents of the ore treated recovered by this means has risen to 79.00 per cent., as against 77.2 per cent. in 1915, which is the highest recovery to date. Considering the diversity of ores treated at the different centres, the result is satisfactory. In all 32,990 tons were treated with gross contents of 34,042.26ozs., and yielded by amalgamation 26,893.58 ozs. (Schedule 5.)

MILLING CHARGES.

No alteration in charges was made during the year. The low grade rebates were still kept in force with rather disappointing results, as only 5,813.75 tons were crushed under these charges, and rebates to the extent of £815 0s. 9d. allowed. Revenue is recouped by this amount from the Development of Mining Vote. The figures for 1915 were 21,042 tons and £3,026 respectively.

REVENUE.

Milling revenue amounted to £21,697 16s. 3d. or 9s. 1.97d. per ton. Included in these figures is the amount of £815 0s. 9d. mentioned above as allowed for low grade rebates, and equal 4.13 pence per ton. Customers paid therefore 8s. 9.84d. per ton.

The revenue shows a decrease of 0.64 pence per ton compared with that of 1915.

EXPENDITURE.

The total expenditure on milling was £29,715 11s. 8d. or 12s. 6.77d. per ton, an increase on the previous year's figures of 8.02 pence per ton. This would be more than accounted for by the increased cost of stores. The total loss on milling £8,017 15s. 5d. as against £6,642 5s. 8d. during 1915. (Schedule 8.)

TIN TREATMENT.

Two plants at Greenbushes were at the disposal of the public, but were very little used. Only 943 yards were treated for customers notwithstanding the high price of tin and reasonable methods of realisation. The Department took advantage of the phenomenal prices ruling to put through 1,025 yards of tailings which just about paid for treatment, including management and administration, producing tin on which we realised £228 19s. 5d. at an expenditure of £233 15s. 2d.

Revenue.—Public crushings amounted to 943 yards, and the charges collected amounted to £190 1s. 2d. or 4s. 0.37d. per yard. Residues treated gave a revenue of £228 19s. 5d., equal to 4s. 5.61d. per yard.

Expenditure.—The expenditure per yard on public ore was heavy, being due to small tonnage. The total was £564 12s. 11d., showing a loss of £374 11s. 9d., and the expenditure per yard was 11s. 11.61d. as against 8s. 1.23d. during 1915. Residue expenditure totalled £233 15s. 2d. or 4s. 6.73d. per yard. This included cost of carting, and shows economical handling. The total loss on tin treatment amounted to £379 7s. 6d. (See Schedule 8.)

TAILINGS TREATMENT.

During 1916 21 departmental leaching plants were in operation treating the accumulations of sand and slime. Besides these, three plants, privately-owned, treated tailings produced at Peak Hill, Mt. Egerton, and Quinns, whilst at Marble Bar and Mt. Ida no tailings were purchased or treated. The tonnage of tailings treated for the year did not come up to expectations, due to the long winter. Our method of treating the slime with the sand in tailings demands dry accumulations. Valuable time was also lost on

account of the difficulty in getting suitable labour of any kind. This difficulty is a serious one, and stoppages from this cause have been the means of inflating costs considerably. During the period under review the tailings treated by the Department amounted to 35,365 tons as against 31,887 tons during 1915, or an increase of 3,478 tons.

Revenue.—The revenue, due to more systematic segregation of unpayable tailings, rose to 8s. 7.34d. per ton from 8s. 0.69d. during 1915. The total amount received in charges was £15,358 10s. 4d., or £2,509 19s. 9d. more than the expenditure.

Expenditure.—The total expenditure amounted to £12,848 10s. 7d. or 7s. 1.79d. per ton, an increase on the figures of 1915 of 4.46 pence. Increased cost of stores and labour more than account for this rise in cost.

The profit as mentioned above was £2,509 19s. 9d. (See Schedule 9.)

SLIME TREATMENT.

Wiluna and Mulwarrie State batteries were the only two plants treating slime. In all 15,536 tons were treated, 2,281 tons by leaching and 13,249 by pressing. The refractory nature of the Mulwarrie slime and the late winter affected the cost of treatment.

Revenue.—The total receipts amounted to £6,691 17s. 11d. or 8s. 7.34d. per ton.

Expenditure.—The amount expended on the treatment of slime was £6,748 0s. 1d. or 8s. 8.24d., showing a loss of £23 10s. 5d. on the total treatment. (Schedule 9.)

RESIDUE TREATMENT.

In connection with the treatment of Mulwarrie slimes, 2,793 tons of residues were treated. These residues are refractory and the cost of chemicals very high.

Revenue is shown at £1,091 3s. 2d. or 7s. 9.77d., and expenditure £1,067 12s. 9d. or 7s. 7.74d., profit £23 10s. 5d. (Schedule 9.)

REPAIRS AND RENEWALS.

Repairs and renewals were much higher than during 1915, owing mainly to reorganisation at Wiluna. The total amounted to £4,599 17s. 9d., and included £3,986 3s. 8d. under milling and £613 14s. 1d. for cyaniding.

The whole cost of repairs was charged to working. (Schedules 8 and 9.) Total repairs and renewals for 1915 were £2,875 2s. 10d.

ADDITIONS AND EQUIPMENT.

£269 7s. 5d. was expended under this heading as against £75 4s. 9d. for 1915, and was charged to working expenditure.

TOTAL OPERATIONS.

Gross Tonnage.—The gross tonnage handled in all operations was 103,266¼ tons compared with 99,933½ tons during 1915, and 116,139½ tons during 1914.

Gross Expenditure.—The gross expenditure for the year for all operations was £51,178 3s. 2d. or 9s. 10.94d. per ton as against 9s. 4.25d. for 1915, an increase of 6.69 pence per ton.

Note.—The item expenditure in comparative synopsis and in schedules 8 to 11 indicate the total expenditure including Head Office administration, inspection and managerial expenses, as well as realisation of bullion and other incidental expenses.

Gross Revenue.—The revenue from all operations was £45,258 8s. 3d., equal to 8s. 9.18d. per ton, as against 8s. 3.32d. during 1915. This shows a satisfactory increase of 5.86 pence per ton.

The gross loss for the year was £6,189 2s. 4d. as against £5,502 7s. during 1915, and £7,418 12s. 3d. during 1914.

Comparative Synopsis of Results of State Batteries for Twelve Months ending 31st December, 1916 and 1915.

Operation.	1916.			1915.		
	Tonnage.	Expenditure per ton.	Revenue per ton.	Tonnage.	Expenditure per ton.	Revenue per ton.
		s. d.	s. d.		s. d.	s. d.
Milling	47,304¼	12 6·77	9 1·97	49,595	11 10·75	9 2·61
Tailings Treatment	35,665	7 1·79	8 7·34	31,887	6 9·33	8 0·69
Slimes Treatment	15,536	8 8·24	8 7·37	3,454½	12 6·26	9 10·13
Residues Treatment	2,793	7 7·74	7 9·77	..	..	..
Tin Treatment	943	11 11·61	4 0·36	1,767	8 1·23	3 11·78
Tin Residues Treatment	1,025	4 6·73	4 5·61	..	..	..

Revenue and Expenditure, 1916.

Operation.	Tonnage.	Expenditure.	Revenue.	Profit.	Loss.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.
Milling	47,304¼	29,715 11 8	21,697 16 3	..	8,017 15 5
Tailings Treatment	35,665	12,848 10 7	15,358 10 4	2,509 19 9	..
Slimes Treatment	15,536	6,748 0 1	6,691 17 11	..	56 2 2
Residues Treatment	2,793	1,067 12 9	1,091 3 2	23 10 5	..
Tin Treatment	943	564 12 11	190 1 2	..	374 11 9
Tin Residues Treatment	1,025	233 15 2	228 19 5	..	4 15 9
	103,266¼	51,178 3 2	45,258 8 3	2,533 10 2	8,453 5 1
Less Profit					2,533 10 2
Loss					5,919 14 11
Additions and Equipment					269 7 5
Gross Loss					£6,189 2 4

PURCHASE OF TAILINGS.

29,530 tons of tailings (sand and slime) were purchased from customers during the year. The net return received by them was £30,734 12s. 8d. (*See* Schedule 7.)

Exclusive of Wiluna (lode) which produced tailings to the extent of full tonnage crushed, namely, 14,340¼, 26,186½ tons of tailings were produced from crushing 32,990 tons of ore treated by amalgamation. 10,341 tons were worth 3dwts. per ton or under, made up of 5,654¼ tons between 2 and 3 dwts. per ton, and 4,691 under 2dwts. per ton. These latter tailings have had to be segregated as worthless, and the profit in those worth between 2 and 3dwts. per ton is insignificant.

The tailings produced exclusive of Wiluna (lode), which could be profitably handled by the Department, viz., those over 2dwts. per ton, amounted to 21,495½ or 65 per cent. only of tonnage crushed. Of these 15,841.25 tons were purchased for £13,079 2s. 11d., and the balance of 5,654¼ tons between 2 and 3 dwts. per ton reverted to the Department.

Wiluna Lode.—13,830.75 tons of tailings were purchased during the year for £17,874 14s. 7d.

Note.—There is no amalgamation, and the above amount represents the net yield from the ore treated, which produced the tailings.

Recovery obtained from ore treated.—28 batteries under Departmental control (excepting Wiluna lode) crushed 32,990 tons of ore for a yield of 26,893.78 ozs. by amalgamation, valued at £114,244.78.

The estimated gross contents of tailings produced was 8,148.58ozs., valued at £34,615.17. The estimated contents of ore milled were 35,042.36ozs., valued at £148,859 18s. 10d. or 90s. 3d. per ton. (Schedule 5.)

This figure is 16s. 10d. per ton higher than for the year 1915, and the increase is partly accounted for by the small amount of low grade ore put through under the War Rebates.

The whole of the gold won by amalgamation, viz., £114,274.78, less crushing charges amounting to £21,697.8, equal to £92,576.98 was returned to owners plus £13,079.15 paid for tailings, or a total of £105,656.11, equal to 70.97 per cent. of gross contents, as against 72.7 per cent. in 1915.

Wiluna Battery crushed 14,340 tons of lode material of assay value of £34,750, and owners received £17,655 net.

Increased charges due to higher grade ore treated and higher value tailings are the main causes of this decrease.

NEW PLANTS.

The old and worn out plant at 20-Mile Sandy was replaced by a modern 5-head battery with latest gas producer and engine and all accessories.

The erection of a 5-head battery was commenced and almost completed at Warriedar, a new centre.

The expenditure from Consolidated Revenue and Loan under erection headings totalled £6,575 17s. 5d. (Schedule 6.)

PLANTS CLOSED.

During the year, Menzies was definitely closed down, practically no stone having been crushed there for the last three years, and two privately-owned batteries being available to crush the little customers' ore available. Part of the plant has been used in the erection of Warriedar, and on Laverton improvements.

Since the inception of this plant to date 54,574¼ tons have been crushed for a return by amalgamation only of £158,966, and it is regrettable the necessity arose for closing this plant. The Darlot plant has also been closed down for lack of stone to warrant the Department expending the necessary money to instal a new boiler.

OUTPUT SINCE INCEPTION.

From the inception of the State Battery system to the end of 1916, State batteries milled 1,114,459.19 tons of ore, which yielded by amalgamation gold to the value of £3,948,741.75, sands and slimes treated aggregated 767,097.25 tons worth £691,837.57, or a total value of £4,640,579.32. In addition to these figures 27,063 tons of residues have been retreated, valued at £7,875.42. The output of tin since inception amounts to 919.838 tons of black tin from 70,969.75 yards of ore treated. The value of tin produced is £87,384.70, exclusive of £219.97 worth from retreatment of residues. The total value of all gold and tin won is £4,736,059.41.

STAFF.

At the end of 1916 the 28 mills treating gold ores were under the management of 12 managers and 3 acting managers, against 14 managers and one acting manager in 1915.

One engineer was kept employed for the full period on construction work. The Head Office staff was the same numerically as for the previous year, consisting of Inspector, Engineer and Draftsman, Assayer, Clerk-in-Charge, and Junior Clerk.

The only change in the personnel of the staff was the appointment of Mr. M. R. Conigrave to the position of assayer to relieve Mr. Murray, promoted to Assistant Chemist and Assayer.

Very loyal and effective service has been rendered by the whole staff, and managers on the fields have under great and increasing difficulties carried out their duties economically as demonstrated by the figures of this report, and satisfactorily to customers as exemplified by the absence of complaints. The work of the year has been done under more or less trying conditions, and it is pleasing to see that the loss has been kept within close range of that for 1915.

GENERAL REMARKS.

With the exception of zinc shavings, a rise in the price of all stores has continued to take place, and it is only by strictest economies that costs have been kept within bounds.

It is regrettable that still another shrinkage in the tonnage of ore brought to State mills has to be reported.

The general opinion existing in mining circles is that the future of the industry is dependent on the successful working of low grade ore bodies, but the fact that though our regulations provide for crushing ore worth under 9dwts. per ton gross value at as low as 6s. per ton for ore worth 6dwts. per ton, the quantity of ore crushed under this rebate system fell from 21,342½ tons during 1915 to 5,813¾ tons last year. In view of this result, it looks as if a further reduction in charges is not the only remedy, but that if assistance is required it should be applied in other directions, for after all the cost of

treatment is small compared with that of mining operations in most cases which come under notice.

Though the tonnage has decreased, the yield per ton has been higher, being 77s. 8d. as against 73s. 5d. for 1915, due in a great measure to the drop in the low-grade ore tonnage above mentioned. (The actual value of the ore crushed is slightly higher, being 324ozs. in excess of 1915 figures). These increases might be taken in some measure as offsets to the diminishing tonnage, but they point to the fact that, at the present time, only the higher valued lodes receive attention by our customers, and that low grade ores are neglected.

During the year an assistant manager has been in charge of Norseman Battery with a view of finding out if an increase in the tonnage could be obtained by crushing as soon as a few tons were booked. It has been so often stated that the minimum tonnage clause was the great drawback, as customers could not wait. The experiment has not been a great success, since the mill crushed only 546¼ tons for the year, and resulted in an increased loss to the Department of £245 19s. 6d.

The scarcity of efficient labour is becoming serious, due largely to enlistments, and for that reason during the year our costs were inflated considerably, especially in tailings treatment operations. Without exception, prices for emptying and filling leaching vats have greatly increased, and there seems reason to believe this trouble will become more acute.

During the year Tazewell automatic samplers were installed at practically all mills, after exhaustive tests made at Coolgardie, Boogardie, and elsewhere. The want of mechanical samplers has long been felt, and it is hoped their installation will overcome difficulties which have arisen in the past in arriving at accurate results, which are so necessary and desirable both for customers and the Department.

The state of repair of plants at the end of the year was good, and, as anticipated, the repairs and renewals were heavy, due in a large measure to repairs to old steam plants. It is a great pity that the prospects of the districts where these repairs have had to be made are so poor as to preclude the installation of gas power plants.

A. M. HOWE,
Superintendent of State Batteries.

Schedule 1.

Return showing the number of Tons Crushed, Gold Yield, Average per Ton in Shillings, and Total Value for Year ending 31st December, 1916.

Battery.	Tons crushed.	Gold Yield, Bullion.	Average per ton in shillings.	Total Value.
		ozs.		£
Bamboo Creek	1,099·00	1,893·20	124·38	6,815·52
Black Range	2,234·25	2,525·52	81·38	9,091·87
Boogardie	3,196·25	2,556·20	57·58	9,202·32
Burtville	557·50	552·00	71·28	1,987·20
Coolgardie	5,806·75	4,545·85	56·36	16,365·06
Laverton	667·50	721·57	77·83	2,597·58
Leonora	293·25	656·90	161·28	2,364·84
Linden	1,075·75	1,388·50	92·93	4,998·60
Marble Bar	524·50	786·05	107·90	2,829·78
Meekatharra	3,162·00	2,318·10	52·78	8,345·16
Mt. Egerton	835·00	463·30	39·95	1,667·88
Mt. Ida	488·00	421·15	62·22	1,518·30
Mt. Keith	1,427·00	1,463·40	73·83	5,268·24
Mt. Sir Samuel	382·50	308·05	57·98	1,108·98
Mulline	793·50	740·75	67·21	2,666·70
Mulwarrie	159·75	232·15	104·63	835·74
Niagara	1,459·75	1,382·62	68·19	4,977·43
Norseman	546·25	986·15	129·98	3,550·32
Ora Banda	987·00	915·35	66·77	3,295·26
Payne's Find	2,254·00	2,209·90	70·59	7,955·64
Quinn's	406·00	252·70	44·81	909·72
Peak Hill	940·50	1,450·65	111·05	5,222·34
Sandy Creek	802·00	852·75	76·56	3,069·90
Siberia	653·75	629·20	69·30	2,265·12
Wiluna	422·25	159·92	27·28	575·72
Yarri	803·00	1,046·00	93·79	3,765·60
Yerilla	149·00	87·20	42·13	313·92
Youanme	864·00	189·60	15·80	682·56
	32,990·00	31,734·73	69·26	114,247·30
Wiluna (Lode)	14,340·25	No	amalgamation.	
	47,330·25			

TIN PLANTS.

——	Tons.	Yield Tons, Black Tin.
Greenbushes—Bunbury End ..	508·00	3·308
„ Salt Water Gully ..	435·00	3·655

Schedule 2.

Return showing the number of Tons Crushed, Gold Yield, Average per Ton, and Value since inception to 31st December, 1916.

Battery.	Tons crushed.	Gold Yield, Bullion.	Average Gold per ton.		Value.
			dwt.	grs.	£
Bamboo Creek	5,390·00	7,481·56	27	18	26,933·62
Black Range	63,219·65	66,417·85	21	1	239,299·59
Boogardie	53,139·40	32,776·09	12	6	119,388·11
Burtville	30,458·00	66,078·71	43	9	239,189·17
Coolgardie	76,973·00	62,305·17	17	5	224,355·69
Darlot	33,210·00	37,638·74	22	16	138,928·25
Leonora	52,030·70	56,903·79	21	21	208,333·97
Laverton	14,546·50	15,547·26	21	9	57,141·86
Linden	16,443·00	18,339·66	22	7	66,022·88
Meekatharra	68,360·50	77,808·49	22	18	282,789·95
Menzies	54,574·25	44,199·67	16	2	158,966·21
Marble Bar	8,777·50	11,136·95	25	9	40,092·97
Mount Egerton	5,706·75	3,443·96	12	2	11,665·08
Mount Ida	39,612·90	52,597·41	26	13	192,652·85
Mount Keith	5,734·25	5,141·25	17	22	18,508·50
Mount Sir Samuel	8,270·25	6,687·85	16	4	24,076·25
Mulline	75,437·70	97,338·04	25	19	349,587·09
Mulwarrie	30,846·90	35,815·31	23	3	132,191·81
Niagara	62,349·25	55,534·04	17	19	202,110·74
Norseman	53,819·95	57,221·42	22	6	209,179·58
Ora Banda	8,976·75	4,243·04	9	11	15,274·92
Payne's Find	12,297·00	14,082·96	22	22	50,698·65
Pinjin	17,088·65	12,912·63	15	3	46,485·04
Quinn's	11,011·50	6,115·83	11	4	22,016·99
Peak Hill	15,404·80	16,758·42	21	18	61,501·55
Siberia	14,489·00	15,743·29	21	18	56,601·17
20-Mile Sandy	11,338·15	18,209·97	32	3	65,885·46
Tuckanarra	15,476·85	21,276·06	27	11	78,217·53
Wiluna	53,706·75	28,769·37	10	17	103,714·91
Yarri	44,144·00	28,710·16	13	0	103,356·40
Yerilla	14,346·25	13,048·00	18	5	44,171·72
Youanme	24,486·00	8,427·61	6	21	30,339·39
Batteries closed	98,667·79	89,389·36	18	3	329,063·85
	1,100,333·94	1,088,099·92	19	19	3,948,741·75
Wiluna (Lode)	14,125·25	No amalgamation.			
	1,114,458·19				

TIN PLANTS.

——	Tons.	Yield, Tons Black Tin.
Greenbushes—Bunbury End	50,313·50	685·504
„ Salt Water Gully	4,852·00	44·803
Plants closed	15,804·25	189·531
	70,969·75	919·838

Milling.	Tons.	ozs.
Up to 1901 (3 years)	68,791	75,533
1902	39,517	57,255
1903	49,233	58,305
1904	71,616	78,309
1905	85,018	92,327
1906	95,831	94,187
1907	95,280	97,962
1908	95,624	89,875
1909	94,218	83,127
1910	89,278	80,074
1911	59,373	56,265
1912	56,636	53,868
1913	60,573	52,515
1914	56,570	45,641
1915	49,595	39,095
1916	47,330	31,734

Cyaniding Sands.	Tons.
Up to 1902	29,255
1903	33,369
1904	42,559
1905	54,420
1906	60,422
1907	63,778
1908	62,081

Cyaniding Sands—*continued.*	Tons.
Up to 1909	61,265
1910	43,915
1911	27,444
1912	18,599
1913	18,300
1914	6,219
Tailings.	
1913	13,078
1914	32,723
1915	31,887
1916	34,725
Slimes Treatment.	
Up to 1904	691
1905	7,028
1906	..
1907	8,220
1908	5,818
1909	16,848
1910	28,819
1911	20,821
1912	8,085
1913	6,089
1914	6,246
1915	3,454
1916	15,536

SCHEDULE 3.

Sands and Tailings Treatment for 1916.

Battery.	Tons.	Yield—Fine ozs.	Value—£.
Bamboo Creek	952	202·14	858·61
Black Range	3,100	850·43	3,613·07
Boogardie	4,330	1,367·65	5,809·61
Coolgardie	6,173	822·32	3,454·87
Laverton	651	100·50	426·94
Meekatharra	3,870	552·58	2,347·36
Mount Keith	1,155	127·58	541·54
Mount Sir Samuel	1,140	318·20	1,351·70
Mulline	710	124·92	530·60
Mulwarrie	..	2·40	10·20
Niagara	1,260	123·54	525·02
Norseman	459	59·41	252·39
Ora Banda	2,305	400·63	1,701·89
Payne's Find	3,776	426·87	1,813·26
Yarri	3,390	360·45	1,531·15
Yerilla	460	45·95	195·19
Youanme	994	166·10	702·04
	34,725	6,051·67	25,665·44
Add 240 tons Payne's Find (Revenue not collected 31st December, 1916). Add 640 tons Sandy Creek (Revenue not collected 31st December, 1916). Add 60 tons Yarri (Revenue not collected 31st December, 1916).	940		
	35,665		

Slimes Plant Treatment for 1916.

Battery.	Tons.	Yield—Fine ozs.	Value—£
Mulwarrie	2,287	371·18	1,576·59
Wiluna	13,249	4,711·70	20,014·22
	15,536	5,082·88	21,590·81

SCHEDULE 4.

Sands and Tailings Treatment since Inception to 31st December, 1916.

Battery.	Tons.	Yield, Fine ozs.	Value—£.
Bamboo Creek	2,968	784·64	3,333·11
Black Range	39,118	10,461·95	44,155·51
Boogardie	34,782	9,553·18	4,0048·93
Burtville	16,788·75	5,464·13	22,793·76
Coolgardie	42,479	6,581·13	27,631·68
Darlot	23,654	2,699·17	11,042·16
Devon	261·50	120·44	511·64
Duketon	2,083·50	250·51	1,025·77
Laverton	13,196	2,081·17	8,644·85
Lennonville	2,4309	6,592·43	26,653·23
Leonora	35,655·50	8,816·56	36,679·79
Linden	13,537	4,092·46	17,385·27
Meekatharra	40,220	7,841·29	32,690·31
Menzies	31,487·50	7,975·80	33,434·78
Mount Ida	3,570	357·97	1,423·64
Mount Keith	4,163	485·50	2,061·91
Mount Sir Samuel	5,886	1,355·67	5,758·89
Mulline	42,514·50	11,829·19	48,027·77
Mulwarrie	23,809·25	4,675·53	19,220·11
Nannine	3,650	410·12	1,742·50
Niagara	41,514	6,418·45	26,685·25
Norseman	37,565·50	7,655·70	31,762·30
Ora Banda	3,331	604·22	2,566·72
Payne's Find	9,213	1,155·89	4,910·18
Pig Well	11,379·	2,373·25	9,962·50
Pinjin	11,718	1,243·07	5,256·01
Quinn's	7,486	686·56	2,916·43
Randell's	791	56·05	224·80
Sandy Creek	9,038·25	2,815·09	11,676·68
Siberia	5,550	1,201·56	5,105·20
Southern Cross	3,471	452·75	1,815·18
Warriedar			
Wiluna	17,852	7,930·79	33,590·87
Yarri	42,530	3,934·40	16,449·29
Yerilla	13,620	1,622·66	6,892·92
Youanme	10,145	2,734·49	11,612·40
Yundamindera	4,977	920·33	3,909·25
	634,313·50	134,234·10	559,601·59

Slimes Treatment since Inception to 31st December, 1916.

Battery.	Tons.	Yield, Fine ozs.	Value—£.
Black Range	13,040	2,604·59	11,064·71
Boogardie	2,100	426·35	1,811·08
Burtville	1,643	519·00	2,204·71
Darlot	570	52·61	223·55
Laverton	273	45·24	192·19
Leonora	12,440	2,198·09	9,338·73
Linden	419	87·30	370·90
Meekatharra	1,980	462·78	1,966·08
Menzies	21,905·50	5,454·53	23,171·45
Mulline	21,576·75	6,833·05	24,557·11
Mulwarrie	2,358·50	395·02	1,677·87
Niagara	13,875	2,175·45	9,242·12
Norseman	16,177·50	3,577·15	15,195·06
Pig Well	340	64·65	274·57
Sandy Creek	293·50	75·00	318·68
Siberia	347	104·47	443·73
Wiluna	19,229	6,696·91	28,447·49
Yarri	3,792	364·06	1,546·62
Yerilla	424	44·55	189·33
	132,783·75	32,180·80	132,235·98

Residue Treatment since Inception to 31st December, 1916.

Battery.	Tons.	Yield, Fine ozs.	Value—£.
Menzies	24,270	1,579·26	6,679·01
Mulwarrie	2,793	281·44	1,196·41
	27,063	1,860·70	7,875·42
Lubra Queen	2,916	375·95	1,596·74

SCHEDULE 5.

Return showing Number of Parcels treated and Tons crushed at State Batteries for Year 1916.

Number of parcels crushed.	Name of Lease or Holding.	Tons.	Yield by Amalgamation. Bullion.	Yield by Amalgamation. Fine Gold.	Gross Contents of Tailings. Fine Gold.	Total Contents of Ore. Fine Gold.	Average per ton. Fine Gold.	Gross Value of Ore. per ton.
			ozs.	ozs.	ozs.	ozs.	dwts. grs.	£ s. d.
19	Bamboo Creek ..	1,099·00	1,893·20	1,604·41	381·87	1,986·28	36 3	7 13 9
52	Black Range	2,234·25	2,525·52	2,140·27	894·75	3,035·02	27 4	5 15 5
65	Boogardie	3,196·25	2,556·20	2,166·27	897·86	3,064·13	19 4	4 1 5
8	Burtville.	557·50	552·00	467·79	125·29	593·07	21 7	4 10 4
177	Coolgardie	5,806·75	4,545·86	3,852·41	1,320·70	5,173·11	17 19	3 15 7
23	Laverton	667·50	721·57	611·50	182·38	793·88	23 19	5 1 0
10	Leonora	293·25	656·90	556·69	59·15	615·84	42 0	8 9 11
24	Linden	1,075·75	1,388·50	1,176·69	751·15	1,927·84	35 20	7 12 2
14	Marble Bar	524·50	786·05	666·14	124·56	790·70	30 4	6 8 2
44	Meekatharra	3,162·00	2,318·10	1,964·49	520·64	2,485·13	15 17	3 6 8
8	Mt. Egerton	835·00	463·30	392·63	201·65	594·28	14 5	3 0 4
7	Mt. Ida	488·00	421·15	356·90	99·68	456·58	18 16	3 19 3
18	Mt. Keith	1,427·00	1,463·40	1,240·17	152·86	1,393·03	19 12	4 2 10
9	Mt. Sir Samuel ..	382·50	308·05	261·06	108·94	370·00	19 8	4 2 1
25	Mulline	793·50	740·75	627·75	122·62	750·37	18 22	4 0 4
8	Mulwarrie	159·75	232·15	196·74	41·47	238·21	29 20	6 6 8
24	Niagara	1,459·75	1,382·62	1,171·71	206·09	1,377·80	18 21	4 0 2
17	Norseman	546·25	986·15	835·72	354·53	1,190·25	43 13	9 4 11
25	Ora Banda	987·00	915·35	775·72	319·20	1,094·92	22 4	4 14 2
39	Payne's Find	2,254·00	2,209·90	1,872·79	214·64	2,087·43	18 12	3 18 7
15	Quinn's	406·00	252·70	214·15	96·06	310·21	15 7	3 4 11
17	Peak Hill	940·50	1,450·65	1,229·36	162·70	1,392·06	29 14	6 5 8
15	Sandy Creek	802·00	852·75	722·67	243·76	966·43	24 2	5 2 4
10	Siberia	653·75	629·20	533·22	104·07	637·29	19 12	4 2 9
10	Wiluna	422·25	159·92	135·52	104·39	239·91	11 9	2 8 3
14	Yarri	803·00	1,046·00	886·44	201·09	1,087·53	27 2	5 15 1
2	Yerilla	149·00	87·20	73·90	15·97	89·87	12 1	2 11 3
2	Youanmi	864·00	189·60	160·68	140·51	301·19	6 23	1 9 6
701	Total tonnage treated	32,990·00	31,734·73	26,893·78	8,148·58	35,042·36	..	4 10 3
36	Wiluna Lode	14,340·25	No amalgamation.		8,180·53	8,180·53	11 9	2 8 3
737		47,330·25						
	Less Estimated Tonnage under treatment, 31st December, 1915 ..	215·00						
		47,115·25						
	Estimated—Add tonnage under treatment, 31st December, 1916 ..	189·00						
		47,304·25	31,734·73	26,893·78	16,329·11	43,222·89	18 7	3 17 8

TIN PLANTS.

No. of Parcels.	Battery.	Yards of Tin ground treated.	Yield.	Average per yard.
			Tons.	lbs.
14	Greenbushes—Bunbury End	508·00	3·587	15·68
16	Do. Salt Water Gully	435·00	3·662	18·81
30		943·00	7·249	17·24

Schedule 6.

Expenditure from Consolidated Revenue Vote and from Loan Expenditure Funds on Erection of State Batteries for year ending 31st December, 1916, and Totals since Inception.

Battery.	From Revenue.	From Loan.	Total.
	£ s. d.	£ s. d.	£ s. d.
Wiluna, Slimes Plant Erection	..	220 17 7	220 17 7
20-Mile Sandy Creek—Erection of 5-Head Battery	..	1,007 18 3	1,007 18 3
Mulwarrie, Slimes Plant Erection	..	271 9 3	271 9 3
Meekatharra, Tailings Plant Erection	..	2 10 9	2 10 9
Laverton, Tailings Plant and general overhaul	..	495 19 11	495 19 11
Payne's Find, Water Supply	..	196 10 0	196 10 0
Warriedar, Battery Water Supply	..	1,890 10 5	1,890 10 5
Warriedar, Battery Erection	..	2,490 1 3	2,490 1 3
	..	6,575 17 5	6,575 17 5
Erection of State Batteries—			
Expenditure to 31st December, 1907	91,981 1 8	..	..
Loan Expenditure to 31st December, 1915	..	265,958 1 11	357,939 3 7
Grand Total	91,981 1 8	272,533 19 4	364,515 1 0

Schedule 7.

Direct Purchase of Tailings, 1916.

Battery.	Tons.	Amount.
		£ s. d.
Bamboo Creek	638·50	345 13 7
Black Range	1,811·00	1,361 19 0
Boogardie	1,772·25	1,894 16 0
Burtville	278·25	217 3 8
Coolgardie	2,521·00	2,231 9 3
Darlot	1,265·00	286 3 5
Laverton	549·75	366 1 6
Leonora	233·25	129 17 7
Linden	838·25	2,330 2 0
Meekatharra	968·00	363 19 11
Mt. Sir Samuel	630·25	480 8 6
Mt. Keith	94·00	31 15 4
Mulline	274·00	212 19 6
Mulwarrie	163·50	164 9 8
Niagara	741·25	164 15 9
Norseman	181·00	523 10 1
Ora Banda	198·25	425 9 4
Payne's Find	415·50	99 4 1
Quinn's	198·00	192 15 5
Sandy Creek	558·25	362 10 9
Siberia	161·75	148 16 0
Wiluna	13,830·75	17,874 14 7
Yarri	467·75	350 18 5
Yerilla	58·00	13 1 0
Youanme	682·50	161 18 4
	29,530·00	30,734 12 8

SCHEDULE 8.

ANNUAL REPORT, 1916.

Statement of Receipts and Expenditure for year ending 31st December, 1916 (exclusive of additions and Equipment).

Plant.	Milling and Tin.													
	Tonnage.	Management.	Wages.	Stores.	Total Working Expenditure.	Cost per ton.	Repairs and Renewals.	Sundries.	Gross Expenditure.	Cost per ton.	Receipts.	per ton.	Profit.	Loss.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	s. d.	£ s. d.	£ s. d.	£ s. d.	s. d.	£ s. d.	s. d.	£ s. d.	£ s. d.
Bamboo Creek	1,099	75 18 8	480 7 6	268 11 9	825 7 11	15 0·25	53 12 4	107 6 6	986 6 9	17 11·39	687 8 9	12 6·23	..	298 18 0
Black Range	2,234·25	205 5 9	430 9 6	458 2 3	1,093 17 6	9 9·60	394 4 1	191 6 6	1,679 8 1	15 0·39	1,122 8 4	10 0·57	..	556 19 9
Boogardie	3,196·25	180 0 7	828 7 7	501 9 6	1,509 17 8	9 5·38	403 13 8	205 8 5	2,118 19 9	13 3·01	1,390 3 3	8 8·20	..	728 16 6
Burtville	557·50	77 0 0	235 2 4	141 10 5	453 12 9	16 3·27	41 6 10	89 4 0	584 3 7	20 11·47	317 1 8	11 4·49	..	267 1 11
Coolgardie	5,806·75	172 15 6	690 8 4	961 14 2	1,824 18 0	6 3·42	212 10 6	587 7 5	2,624 15 11	9 0·48	2,765 8 11	9 6·54	140 13 0	..
Darlot	..	..	..	..	..	..	..	1 12 0	1 12 0	..	..	..	..	1 12 0
Laverton	667·50	132 10 0	179 7 2	94 15 6	406 12 8	12 2·20	95 8 4	79 19 5	582 0 5	17 5·26	373 6 11	11 2·23	..	208 13 6
Leonora	293·25	114 4 9	125 15 3	78 0 7	318 0 7	21 8·26	270 5 8	46 16 1	635 2 4	43 3·77	154 19 3	10 6·81	..	480 3 1
Linden	1,075·75	138 0 0	267 13 7	132 15 2	538 8 9	10 0·12	142 13 7	171 15 0	852 17 4	15 0·27	602 5 0	11 2·17	..	250 12 4
Marble Bar	524·50	130 5 10	314 2 0	137 10 7	581 18 5	22 2·26	..	98 11 9	680 10 2	25 11·38	326 10 10	12 5·30	..	353 19 4
Meekatharra	3,162	232 0 0	686 10 9	482 18 3	1,401 9 0	8 10·37	179 11 1	227 10 7	1,808 10 8	11 5·27	1,226 9 2	7 9·08	..	582 1 6
Menzies	..	46 6 8	55 0 0	..	101 6 8	..	..	74 13 1	175 19 9	..	263 10 4	..	87 10 7	..
Mt. Egerton	943	180 0 0	228 12 0	205 1 7	613 13 7	13 0·18	102 14 8	117 3 11	833 12 2	17 8·15	495 1 6	10 6·00	..	338 10 8
Mt. Ida	488	110 2 4	262 5 7	66 11 7	438 19 6	17 11·88	21 18 10	36 17 2	497 15 6	20 4·80	246 12 10	10 1·28	..	251 2 8
Mt. Keith	1,427	77 0 0	505 11 11	299 14 5	882 6 4	12 4·39	76 7 9	121 5 7	1,079 19 8	15 1·63	750 5 4	10 6·18	..	329 14 4
Mt. Sir Samuel	382·50	62 10 0	192 5 0	83 11 8	338 6 8	17 8·01	125 5 10	74 3 3	537 15 9	28 0·97	201 17 3	10 6·18	..	335 18 6
Mulline	793·50	142 0 0	264 7 7	172 1 2	578 8 9	14 6·83	105 5 4	92 7 6	776 1 7	19 6·70	418 15 8	10 6·15	..	357 5 11
Mulwarrie	159·75	21 0 0	124 3 7	92 7 7	237 11 2	29 8·90	36 1 2	27 7 7	300 19 11	37 8·18	64 10 0	8 0·91	..	246 9 11
Niagara	1,505·75	111 9 2	323 10 1	301 2 11	736 2 2	9 9·31	88 15 2	137 0 1	961 17 5	12 9·31	731 17 6	9 8·66	..	229 19 11
Norseman	546·25	217 11 4	205 0 5	139 14 1	562 5 10	20 6·92	54 3 8	85 3 11	701 13 5	25 7·99	304 6 3	11 1·56	..	397 7 2
Ora Banda	987	86 0 0	222 2 1	54 6 1	362 8 2	7 4·12	5 9 6	83 8 10	451 6 6	9 1·74	433 16 2	8 9·48	..	17 10 4
Payne's Find	2,289	142 13 6	712 14 2	440 19 3	1,296 6 11	11 7·06	244 1 8	174 16 5	1,715 5 0	14 11·93	1,222 5 2	10 8·13	..	482 19 10
Peak Hill	940·50	131 0 0	243 1 3	165 7 4	539 8 7	11 5·55	43 11 8	84 11 11	667 12 2	14 2·22	436 15 5	9 3·27	..	220 16 9
Pinjin	..	..	..	0 17 3	0 17 3	..	..	..	0 17 3	..	34 19 0	..	34 1 9	..
Quinn's	406	22 11 5	191 18 2	55 1 5	269 11 0	13 3·34	19 5 0	57 7 4	346 3 4	17 0·62	195 7 1	9 7·48	..	150 16 3
20-Mile Sandy Creek	802	101 8 10	404 3 4	230 12 9	736 4 11	18 4·39	48 1 5	106 18 5	891 4 9	22 2·80	527 6 9	13 1·72	..	363 18 0
Siberia	653·75	53 4 6	111 12 6	80 15 2	245 12 2	7 6·17	24 2 6	42 14 1	312 8 9	9 6·64	232 19 8	7 1·15	..	79 9 1
Wiluna	14,547·50	189 12 1	2,055 17 8	1,563 10 9	3,809 0 6	5 2·84	945 16 5	825 10 8	5,580 7 7	7 8·06	5,364 17 4	7 4·51	..	225 10 3
Yarri	803	44 10 2	213 11 2	124 19 10	383 1 2	9 6·48	185 14 4	111 8 4	680 3 10	16 11·29	431 16 1	10 9·14	..	248 7 9
Yerilla	149	24 7 11	95 6 7	23 13 5	143 7 11	19 3·97	..	28 4 7	171 12 6	23 0·44	78 4 6	10 6·00	..	93 8 0
Youanme	864	43 11 5	175 11 10	83 15 4	302 18 7	7 0·14	35 2 4	92 10 11	430 11 10	9 11·61	271 2 6	6 3·31	..	159 9 4
Black Range Sales	..	..	..	2 8 0	2 8 0	..	..	..	2 8 0	..	2 8 0	..	..	..
Darlot Sales	..	..	..	1 12 0	1 12 0	..	..	..	1 12 0	..	25 2 2	..	23 10 2	..
Laverton Sales	..	..	..	61 14 9	61 14 9	..	..	..	61 14 9	..	61 14 9	..	..	..
Mount Jackson Sales	..	..	..	123 11 0	123 11 0	..	..	..	123 11 0	..	123 11 0	..	..	..
Mount Keith Sales	..	..	..	0 14 0	0 14 0	..	..	..	0 14 0	..	0 14 0	..	..	..

Mulwarrie Sales	..	..	..	20 15 2	20 15 2	..	..	..	20 15 2	..	20 15 2	..	..	..
Niagara Sales	..	..	..	3 12 0	3 12 0	..	..	..	3 12 0	..	3 12 0	..	..	..
Payne's Find	..	..	..	2 6 0	2 6 0	..	..	..	2 6 0	..	2 6 0	..	..	..
Wiluna Sales	..	..	..	1 7 9	1 7 9	..	..	..	1 7 9	..	1 7 9	..	..	..
Yarri	..	..	..	4 0 0	4 0 0	..	..	..	4 0 0	..	4 0 0	..	..	..
Mt. Jackson	..	..	..	..	..	..	..	..	..	..	160 12 8	..	160 12 8	..
	47,304·25	3,265 0 5	10,825 8 11	7,663 12 5	21,754 1 9	9 4·75	3,955 3 4	4,180 11 3	29,889 16 4	12 7·63	22,078 11 11	..	446 8 2	8,257 12 7
TIN PLANTS.														
Greenbushes—Bunbury End	508	135 0 0	33 9 3	61 4 7	229 13 10	9 0·51	27 2 4	37 3 2	293 19 4	11 6·89	85 5 11	3 4·30	..	208 13 5
Do. Salt Water Gully ..	435	180 0 0	47 14 6	31 0 4	258 14 10	11 10·70	3 18 0	8 0 9	270 13 7	12 5·53	104 15 3	4 8·14	..	165 18 4
	48,247·25	3,580 0 5	10,906 12 8	7,755 17 4	22,242 10 5	..	3,986 3 8	4,225 15 2	30,454 9 3	..	22,268 13 1	..	446 8 2	8,632 4 4

SCHEDULE 9.

ANNUAL REPORT, 1916.

Statement of Receipts and Expenditure for Twelve Months ending 31st December, 1916 (exclusive of Additions and Equipment).

Plant.	TAILINGS, SLIMES, AND RESIDUES.														
	Tonnage.	Management.	Wages.	Assays.	Stores.	Total Working Expenditure.	Cost per ton.	Repairs and Renewals.	Sundries.	Gross Expenditure.	Cost per ton.	Receipts.	per ton.	Profit.	Loss.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	s. d.	£ s. d.	£ s. d.	£ s. d.	s. d.	£ s. d.	s. d.	£ s. d.	£ s. d.
Bamboo Creek	952	56 1 4	294 14 7	43 19 0	156 8 11	851 3 10	11 6·94	9 11 3	38 19 3	599 14 4	12 7·18	536 0 1	11 3·38	..	63 14 3
Black Range	3,100	157 2 1	391 18 5	110 17 5	374 4 0	1,034 1 11	6 8	2 16 9	155 14 8	1,192 13 4	7 8·33	1,526 2 9	9 10·15	333 9 5	..
Boogardie	4,330	149 19 5	484 8 4	87 8 3	484 7 7	1,206 3 7	5 6·85	43 12 3	163 15 9	1,413 11 7	6 6·35	2,064 4 5	9 6·41	650 12 10	..
Burtville	..	..	..	0 8 0	16 0 0	16 8 0	..	..	2 0 11	18 8 11	..	267 14 7	..	249 5 8	..
Coolgardie	6,173	180 4 6	642 0 10	72 17 6	729 6 5	1,624 9 3	5 3·15	24 11 0	263 3 0	1,912 3 3	6 2·34	2,340 15 2	7 7·00	428 11 11	..
Laverton	651	45 0 0	75 17 0	15 3 7	29 18 11	165 19 6	5 1·19	2 18 4	42 5 11	211 3 9	6 5·85	348 17 1	10 8·61	137 13 4	..
Leonora	..	..	1 9 0	..	3 5 4	4 14 4	..	..	..	4 14 4	..	..	..	..	4 14 4
Linden	..	18 0 0	48 11 8	4 12 0	10 4 7	81 8 3	..	2 6 8	42 10 4	126 5 3	..	40 16 11	..	..	85 8 4
Meekatharra	3,870	105 0 0	537 3 4	21 12 4	412 6 6	1,076 2 2	5 6·74	..	147 11 11	1,223 14 1	6 3·88	1,481 14 4	7 7·88	258 0 3	..
Menzies	..	..	..	..	10 19 0	10 19 0	..	..	..	10 19 0	..	124 11 4	..	113 12 4	..
Mt. Keith	1,155	45 0 0	120 12 0	20 1 11	63 11 4	249 5 3	4 3·79	1 12 9	47 12 8	298 10 8	5 2·03	386 11 10	6 8·33	88 1 2	..
Mt. Sir Samuel	1,140	69 10 0	154 10 10	86 5 11	288 7 11	598 14 8	10 10·08	18 10 10	102 5 7	719 11 1	12 7·48	744 5 0	13 0·67	24 13 11	..
Mulline	710	40 0 0	88 3 4	67 13 8	111 19 3	307 16 3	8 8·04	37 12 8	24 13 9	370 2 8	10 5·11	307 11 0	8 7·96	..	62 11 8
Niagara	1,260	30 0 0	147 10 0	17 10 2	113 12 4	308 12 6	4 10·78	..	36 7 8	345 0 2	5 5·71	478 0 3	7 7·05	133 0 1	..
Norseman	459	59 7 1	39 3 0	15 19 2	56 14 11	171 4 0	7 5·5	8 2 0	26 5 4	205 11 6	8 11·48	189 19 6	8 3·33	..	15 12 0
Ora Banda	2,305	105 0 0	319 12 1	104 18 1	287 0 3	816 10 0	7 1·01	0 5 7	97 6 3	914 2 3	7 11·17	962 5 7	8 4·18	48 3 4	..
Payne's Find	4,016	130 0 0	487 15 1	72 6 7	414 14 11	1,104 16 7	5 6·02	1 10 0	193 2 1	1,299 8 8	6 5·65	1,544 14 6	7 8·31	245 5 10	..
Quinn's	..	..	..	..	..	..	..	..	..	..	..	11 10 2	..	11 10 2	..
20-Mile Sandy	640	66 13 4	117 9 7	15 9 3	80 17 9	280 9 11	8 9·18	10 18 2	34 8 10	325 16 11	10 2·19	344 3 6	10 9·06	18 6 7	..
Yarri Tailings	3,150	119 17 2	357 18 7	38 13 2	308 10 4	824 19 3	5 2·18	13 16 9	119 18 9	958 14 9	6 1·04	889 1 2	5 7·72	..	69 13 7
Yarri Sands	300	10 1 3	30 2 9	8 19 5	35 16 5	84 19 10	5 7·99	1 4 4	16 2 8	102 6 10	6 9·87	153 15 2	..	51 8 4	..
Yerilla	460	..	60 0 0	11 17 0	45 11 3	117 8 3	5 1·25	7 1 0	26 1 3	150 10 6	6 5·53	195 19 1	8 6·24	45 8 7	..
Youanme	994	59 5 0	133 0 0	101 11 8	95 0 4	388 17 0	7 9·88	4 7 1	52 2 8	445 6 9	8 11·52	419 16 11	8 5·35	..	25 9 10
	35,665	1,446 1 2	4,532 0 5	918 4 1	4,128 18 3	11,025 3 11	6 2·18	190 17 5	1,632 9 3	12,848 10 7	7 2·46	15,358 10 4	8 7·34	2,837 3 9	327 4 0
SLIMES.															
Mulwarrie	2,287	67 1 1	229 0 1	46 14 4	441 12 4	784 7 10	6 10·35	5 14 7	104 18 5	895 0 10	7 9·92	1,086 9 3	9 5·62	191 8 5	..
Wiluna	13,249	170 7 11	2,188 12 9	370 16 0	2,111 2 9	4,840 19 5	7 3·69	397 11 4	614 8 6	5,852 19 3	8 10·01	5,605 8 8	8 5·54	..	247 10 7
RESIDUES.															
Greenbushes—Bunbury End	1,025	45 0 0	72 8 0	..	36 10 6	153 18 6	3 2·03	5 6 3	74 10 5	233 15 2	4 6·73	228 19 5	4 5·61	..	4 15 9
Mulwarrie	2,793	83 18 11	270 7 8	48 15 6	538 0 5	941 2 6	6 8·87	14 4 6	112 5 9	1,067 12 9	7 7·74	1,091 3 2	7 9·76	23 10 5	..
	55,019	1,812 9 1	7,292 8 11	1,384 9 11	7,256 4 3	17,745 12 2	..	613 14 1	2,538 12 4	20,897 18 7	7 7·17	23,370 10 10	..	3,052 2 7	579 10 4

SCHEDULE 10.

STATE BATTERIES.

Balance Sheet from Inception of Scheme to 31st December, 1916.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Capital Expenditure—			By Batteries, Cyanide and		
From General Loan Fund	272,533 19 4		Slimes Plants	364,515 1 0	
„ Consolidated Revenue	91,981 1 8		Less Depreciation ..	260,924 6 6	
		364,515 1 0			103,590 14 6
To Treasury	..	87,685 10 2	By Stores	..	14,398 4 9
„ Interest and Sinking Fund	..	199,633 14 0	„ Sundry Debtors	..	10,200 2 4
„ Sundry Creditors ..	..	3,100 14 3	„ Profit and Loss Account	..	526,745 17 10
		654,934 19 5			654,934 19 5

Profit and Loss Account.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Expenditure—			By Revenue	1,015,670 6 1	
Head Office and all Batteries	1,081,858 3 5		„ Loss on Working carried down ..	66,187 17 4	
		1,081,858 3 5			1,081,858 3 5
To Loss on Working brought down	66,187 17 4				
„ Interest at 3½ per cent. and Sinking Fund at 1¼ per cent. on Capital Expenditure	199,633 14 0				
„ Depreciation	260,924 6 6				
		526,745 17 10	„ Gross Loss		526,745 17 10

SCHEDULE 11.

Working Profit and Loss Account for Year ending 31st December, 1916.

	£ s. d.	£ s. d.		£ s. d.	£ s. d.
To Expenditure as per attached Statement—			By Revenue as per Statement	22,268 13 1	
Batteries and Tin Plants	30,454 9 3		„ Tailings and Slimes Charges	23,370 10 10	
Tailings and Slimes Plants	20,897 18 7				45,639 3 11
		51,352 7 10			
To Loss on Working brought down	5,713 3 11				
„ Additions and Equipment (paid from Revenue) ..	269 7 5				
		5,982 11 4	Net Loss on year's operations ..		5,982 11 4

DIVISION IV.

ANNUAL PROGRESS REPORT

OF THE

GEOLOGICAL SURVEY

For the Year 1916,

WITH TWO MAPS.

TABLE OF CONTENTS.

ANNUAL PROGRESS REPORT OF THE GEOLOGICAL SURVEY FOR THE YEAR 1916.

The Geological Survey Division carried on its work during the calendar year 1916 along the usual lines, owing to the fact that the detailed geological surveys of mining and other fields, as well as the other investigations arising therefrom, necessitated the continuance to a certain extent of programmes previously initiated. The Staff (both in the office and in the field) have been directing their energies to the investigation of those raw materials, the exploitation of which are of special importance under present conditions.

THE STAFF.

The work of the Survey has, during the year, been carried out by nineteen classified officers, and there has been no change in the *personnel.*

The officers and other employees in the Geological Survey have responded well to the call of their King and country, the total number enlisting for Active Service up to the close of the year being five; of those whose age and physical condition permitted of their undertaking active military duties, two have rendered the supreme sacrifice.

In addition to the above-mentioned, two other officers have, for purely departmental reasons, been refused the necessary leave to enable them to join the Expeditionary Forces, whilst another has served for twelve months as Assistant Censor on the Headquarters Staff in Perth.

FIELD WORK.

As may be seen by reference to map showing the present condition of the four miles per inch series of geological sketch maps, good progress has been made with these systematic surveys, and owing to the numerous inquiries for the maps these have met a much felt want.

By the end of the year 1917 it is hoped that this work will have been so far advanced as to permit of a general geological sketch map of the goldfields, extending from Pilbara to the Phillips River, being prepared on the scale of 10 miles to the inch.

The attached table shows the distribution of the field work and gives the names of the officers engaged in the different districts during the calendar year 1916.

Table showing the Distribution of Field Work for the Year 1916.

Goldfield or Land Division.	H. P. Woodward.		T. Blatchford.		J. T. Jutson.		H. W. B. Talbot.		E. de C. Clarke.		F. R. Feldtmann.		C. S. Honman.	
	No. of days in the field.	Percentage of working days.	No. of days in the field.	Percentage of working days.	No. of days in the field.	Percentage of working days.	No. of days in the field.	Percentage of working days.	No. of days in the field.	Percentage of working days.	No. of days in the field.	Percentage of working days.	No. of days in the field.	Percentage of working days.
South-West Division	165	45·2	4	1	..	..	10	2·73	11	3·0	..	..	..	..
Phillips River Goldfield	21	5·75	..	..	..	..	..	..	..	..	..	..	..	..
Kalgoorlie Goldfield	..	..	..	..	..	..	5	1·36	..	..	..	..	..	..
Yilgarn Goldfield	..	..	82	22·5	..	..	..	..	..	..	..	..	..	..
Mt. Margaret Goldfield	..	..	..	..	..	..	36	9·86	24	6·57	..	..	17	4·65
Central Division	..	..	..	..	..	..	21	5·75	21	5·75	..	..	..	..
Eastern Division	..	..	..	..	..	..	88	24·0	88	24·0	..	..	..	..
Murchison Goldfield	..	..	..	..	..	..	..	..	..	..	127	34·8	..	..
Yalgoo Goldfield	..	..	..	..	..	..	..	..	..	..	116	31·8	..	..
North Coolgardie Goldfield	..	..	..	..	110	30·13	..	..	..	..	..	..	164	44·93
Total	186	50·77	86	23·5	110	30·13	160	43·70	144	39·32	243	66·6	181	49·58

The work of the year embraced a detailed survey of the neighbourhood of Westonia and the adjoining portion of the northern portion of the Yilgarn Goldfield. A survey of the Mining Centres of Comet Vale and Goongarrie, on the North Coolgardie Goldfield, about which there is no official geological account, has been inaugurated, and is in progress.

A reconnaissance survey of the reputed mineral-bearing country in the immediate neighbourhood of the Warburton Range, S. Lat. 26, near the South Australian border, was commenced, but unfortunately field work was curtailed owing to the hostility of the natives, in which the leader of the party, Mr. H. W. B. Talbot, and one of the camp hands, J. W. Johnson, were wounded, necessitating an immediate return to Laverton, where Johnson, the more seriously wounded, was placed under medical care.

The mining centre of Quinn's, on the Murchison, was examined, in the light of the mining work done and the increased knowledge of the conditions governing the occurrence of gold, etc., since the original investigations in 1903.

Jasper Hill, on the Murchison Field, 12 miles south-east of Cue, also received attention at the hands of the geological staff.

In conformity with the policy of geologically linking up known centres with outlying areas, work in the neighbourhood of Yerilla, on the North Coolgardie Goldfield, was duly put in hand and completed during the year.

A commencement has been made of examining the various mining centres on the Yalgoo Goldfield which, though one of the oldest in the State, is one about which little is officially known.

Good progress has been made with the investigations into the mineral and allied resources of the South-West Division, which have been in progress for some considerable time.

As has been the case in previous years, administrative and other duties have prevented me carrying out much systematic field work in person; nevertheless, opportunity was afforded of visiting and carrying on a little geological work, in portions of the Yalgoo Goldfield, which were deemed to be of some importance, not so much from the local standpoint as from the bearing of the results on the structure of other portions of the State.

The time of the resident scientific officers has, as usual, been devoted to work arising out of the field investigations, etc.; under certain limitations they, *inter alia,* determine and examine mineral and rock specimens; whenever necessary, such are analysed and reported upon. In addition to this current routine work, the following researches have been initiated and prosecuted as opportunity offered:—

Clays.—A study of the properties and ceramic value of the clays of the State, with a view to their utilisation in the manufacture of many clay products, hitherto imported from abroad.

Tantalum Ores.—A study of the composition and physical properties of the Tantalum-bearing minerals, which have such a wide distribution in the State.

Bismuth Assays.—In view of the present high value of bismuth ores and the continued export of these from the State, the present unsatisfactory methods of assay are being investigated with a view to their improvement.

The Gem and Ore-bearing Pegmatites, Gneisses, and Aplites are being investigated as opportunity offers, as are also the Granites and allied Acidic Rocks.

H. P. Woodward, Assistant Government Geologist:

The major portion of the year available for field work was devoted by Mr. Woodward to an examination of that portion of the South-West Division which was not touched during the previous year. The main work in the South-West resulted in about 1,150 square miles being mapped in fair detail, while a much larger tract lying to the eastward of Albany was surveyed in a much broader manner.

During the progress of this work many important economic problems were investigated, such as (a) the Graphite Deposits of the Donnelly River; (b) the Reputed Petroliferous Area of the Abba River; (c) the Calcareous Sands of Busselton; (d) Building Stones; (e) the Molybdenite Deposit of North Dandalup; (f) the Acid Waters in the swamps near Albany; (g) Phosphate Deposits; (h) Clay Deposits of Newlands, and (i) the Country lying between the Great Southern Railway and the Oldfield River.

In all Mr. Woodward spent 186 days in field work, of these 165 were in the South-West Division, and 21 in the Phillips River Goldfield.

A considerable portion of the time spent at headquarters was occupied in attending to the multifarious office duties consequent upon my absence in the field.

T. Blatchford, Assistant Geologist:

The early portion of the year 1916 was occupied in writing up a detailed account of the Forrestania gold find, and the district lying between Mount Holland and the Phillips River; of this a synopsis will be found in the Annual Report for 1915.

The writing of a detailed report on the mining centre of Westonia and that portion of the Yilgarn Goldfield lying to the north of the Railway Line was commenced. It became necessary on account of the time devoted to the examination of Forrestania and the McIntyre Prospecting Expedition, to revise the field work at Westonia and bring the account of the mining operations up to date. This was accomplished after accumulated annual recreation leave had been taken.

A brief visit was paid to Kendenup, in the South-West, and a report on the graphite mines in that district was prepared.

The total number of days devoted to field work was 86.

J. T. Jutson, Field Geologist:

Returning from annual recreation leave on the 21st of January, Mr. Jutson was fully occupied on office duty up to the 26th of August.

Preparing an article entitled "The Physiography of Western Australia in its Relation to Prospecting and Mining," with various drawings, for the proposed Mining Handbook.

Putting report on the Golden Butterfly Mine near Kookynie into form for publication, and embodying the results of the petrological examination of the rocks.

Putting report on the Darlôt Deep Lead into form for publication and embodying the results of the petrological examination of the rocks.

Preparing report with maps on the Yilgangi district, North Coolgardie Goldfield.

Preparing an article entitled "Relation of the Law to Prospecting and Mining in Western Australia," with various drawings, for the proposed Mining Handbook.

Preparing a Card Index of all publications issued in Western Australia for the years 1914 and 1915 in the departments of Geology and Geography for the International Catalogue of Scientific Literature.

In addition, owing to shorthandedness in the office, Mr. Jutson was engaged in various other duties, such as, amongst other matters, the correction of proofs of, and preparation of an index relating to, certain of the Department's publications.

This officer was also employed in preparing for the geological survey of the mining centres of Comet Vale and Goongarrie, and on the 26th of August he left Perth for Comet Vale. From then until the 13th of December he was engaged on the geological survey of Comet Vale and Goongarrie.

During the year Mr. Jutson spent 110 working days on Geological work in the field.

H. W. B. Talbot, Field Geologist :

Returning from his military duties as Assistant Censor on 1st March, Mr. Talbot was occupied at the head office in plotting field work and preparing geological plans of the country traversed during the field season of 1914. The mapping of the laterite near Mundaring, in the Darling Range, occupied his time for 12 days in the month of May. On the 15th of May Mr. Talbot was instructed to organise and take the leadership of a geological expedition equipped for the purpose of examining the country between Laverton and the South Australian Border. He left Perth on the 22nd of June, and returned to Perth on the 13th November. From that time until the 18th of December, when Mr. Talbot went on leave, he was fully engaged in plotting the traverse of the trip.

The total number of days spent on work in the field during the year amounted to 160.

E. de C. Clarke, Field Geologist :

Up to the 26th of June Mr. Clarke's time was occupied at head-quarters in the multifarious work required in connection with the Bulletin on the Geology and Ore Deposits of Meekatharra, with a slight interruption of about a fortnight in May, when he assisted Mr. Talbot in the mapping of the laterites in the Darling Range.

From June the 27th until November the 28th Mr. Clarke accompanied Mr. Talbot on the reconnaissance survey from Laverton to the South Australian Border. From the 14th of December to the close of the year was occupied with recreation leave.

Mr. Clarke spent 144 days in the field.

F. R. Feldtmann, Field Geologist:

After returning from his annual leave for 1915, Mr. Feldtmann spent the months of January, February, and part of March in completing his report on the North End of Kalgoorlie. Leaving head-quarters on the 31st of March for Quinn's, on the Murchison Goldfield, Mr. Feldtmann was engaged on field work there until the 30th of May, from where he proceeded to Jasper Hill—formerly known as the Pinnacles—and was occupied in the survey of that centre up to the 2nd of August.

Having completed his work on the field, Mr. Feldtmann was engaged on a geological survey of the mining areas at Warriedar, on the Yalgoo Goldfield, which occupied him until the 25th of November, when he returned to head-quarters; the remainder of the year being devoted to revision of maps, etc., for the Bulletin on the North End of Kalgoorlie, and annual leave for 1916.

Mr. Feldtmann spent 243 days in the field.

C. S. Honman, Field Geologist :

The field work of Mr. Honman for the year 1916 was exclusively devoted to the survey of about 5,000 square miles of country in the Yerilla district of the North Coolgardie Goldfield, which was completed on the 17th of October, 1916. Mr. Honman having joined the Expeditionary Forces for service at the Front on the 18th December, 1916, was unfortunately unable to devote as much time to the preparation of the report on his field work as would otherwise have been the case.

During the year Mr. Honman spent 181 days in the field.

OFFICE WORK.

Work in the office bulked very largely during the year; a very large and ever-increasing portion of my own time being taken up with the routine work connected with the demands of the public in regard to what may be called the applied side of geology.

The return given below shows the volume of editorial work carried out during the year 1916, with the assistance of the Clerk-in-Charge and Librarian:—

Table showing Editorial Work, 1916.

Report.	Pages.		Figures.	Plates.
	MS.	Type.		
Bulletin LXVI. ..	..	75	9	17
,, LXVII. ..	209	197	10	..
,, LXVIII. ..	..	342	88	25
,, LXIX ..	135	152	43	14
Annual Report, 1915.	104	44	..	1
Total ..	448	810	150	57

Attention is again directed to the urgent necessity which now obtains for taking into serious consideration the broad question of office, laboratory, and museum accommodation for the whole of the Staff and the Survey's Collection, for until some definite steps are taken to overcome the serious disadvantage arising out of inadequate accommodation, the efficiency of the geological survey is very seriously impaired.

GEOLOGICAL MAP OF WESTERN AUSTRALIA.

The preparation of a general geological sketch map of the State has been the aim of the Department ever since the Survey was inaugurated in 1896, it being fully recognised that "the highest function of

"a geological survey is to lay a basis for future "scientific observations by accurately mapping the "relation of the various formations met with in a "given district."

The geological map of the State has been prepared from all sources and virtually represents the work of the Survey since 1896. New material for the map is, of course, always coming to hand as our observations proceed and it became necessary to close the record on a given date, for which purpose the end of the year 1916 has been tentatively fixed. It would have been practicable to have published a geological sketch map long ere this, but it would have had many imperfections; the delay in publication, however, will be found to have been attended with advantage. As will be seen when the map is available, certain areas have not been mapped, and others only in a general way. Those portions of the State which have been but imperfectly explored cannot, of course, be represented on the geological sketch map, but are left blank. The geological formations of Western Australia are in all probability much more numerous than those shown on the map, and within the large area of Pre-Cambrian rocks no subdivision has yet been attempted, though there are some strong scientific reasons for believing that they include several discordant stratigraphical units. In other cases, the relatively small scale of the map (1 : 1,584,000) precludes the possibility of showing formational divisions. The expedition to the South Australian Border has brought to light many important facts regarding the geology of a portion of the State, about which little was known, and the discoveries have more than local significance. These, in conjunction with the results of the traverse from Wiluna, across the north-eastern portion of the State to Hall's Creek and Tanami, have enabled a geological connection to be effected with known areas in Central Australia.

PRINCIPAL RESULTS OF THE YEAR'S OPERATIONS.

NOTES ON THE SOUTHERN PORTION OF THE YALGOO GOLDFIELD.

(A. GIBB MAITLAND.)

On the 21st of July, I left Perth for the Yalgoo Goldfield, and devoted some time to the country in the neighbourhood of Mount Gibson, where a large and important iron deposit occurs. The ore consists mainly of hematite, with a little limonite, magnetite, and quartz; on analysis in the Survey Laboratory it has been found to contain 68.22 per cent. of metallic iron. From its composition, etc., the ore is of very high grade and well suited for steel-making by the acid process. The iron ore is a large lens about 2,000 feet in length, and an average width of 200 feet; the deposit makes a prominent feature in the landscape, forming as it does the back part of a long razor-backed range of hills, made up of banded quartz and jaspilite, which there are sound reasons for believing to have been originally of sedimentary origin. The lens is enclosed in a ferruginous jaspilite made up of quartz (57 per cent.), hematite, limonite, a little magnetite, together with some talc (?) and a little kaolin. The total iron content in an average sample of the jaspilite is low, being only 28.57 per cent.; the ore, however, is too low in iron and too high in silica (58.08 per cent.) to be smelted without concentration, which latter, however, is not feasible. The width of the enclosing jaspilite varies within wide limits, whilst the iron of the lens passes into it by almost imperceptible gradations. Laterally, the gradation takes the form of the width of the band of ore; these, in some cases, being no thicker than a sheet of paper. There are in reality no definite boundaries to what may be called the whole of the iron-bearing formation, the limits at Mount Gibson being defined by the locality where the siliceous element predominates to the exclusion of the iron ore; this varies from 800 to 1,000 feet.

An examination was made of the more immediate vicinity of Mount Singleton (Ninghan) which forms one of the most pronounced topographical features in this latitude. Geologically, Mount Singleton forms one of the most interesting and important ranges in this portion of Western Australia; in it are exposed a great group of ancient sediments and associated igneous rocks, which seem to bear a very close lithological and stratigraphical resemblance to the Nullagine Formation as developed further to the north. A special feature in this locality consists in the remarkable freshness of the rocks, which have not been very much affected by secular decay. An instrumental traverse was made across Mount Singleton from the base to the Trig. Station K49. The mountain mass consists of a series of sediments, etc., over 2,000 feet in thickness, the exact geological age of which is yet in doubt; this, however, it is hoped may be settled by the areal survey of this portion of the Yalgoo Goldfield, which is at present in progress. The solution of this problem has an important bearing upon the auriferous conglomerate of the Bonnie Venture, near Yandanhoo Hill, to which reference was made on page 6 of the Annual Report for the year 1915.

I returned to head-quarters on the 2nd of September, where I was engaged on office duty until the 10th of October, when I again took to the field and devoted some time to inspection work with my colleague, Mr. Feldtmann, who was at work on a detailed survey of Warriedar and the other gold-mining centres in the more immediate vicinity.

Opportunity was taken while at this centre to make a section across Mount Warriedar, K47, which consists of a series of highly inclined sediments, quartzites, and conglomerates, associated with grey fissile shales. The quartzites and conglomerates are of some considerable geological importance in that they appear to be on the same stratigraphical horizon as those of Yandanhoo Hill to the south of Mount Singleton, which are auriferous, and to which reference has already been made. Lithologically, the Warriedar conglomerates are unlike those of Yandanhoo Hill in that they are purely siliceous and not ferruginous, like the gold-bearing sediments of Bonnie Venture. The sediments are invaded by granite of the ordinary type prevailing on the Yalgoo Goldfield.

While in the neighbourhood of Warriedar opportunity was taken to examine the neighbourhood of Mount Mulgine, which lies some distance to the south of Warriedar, near the road to Rothsay, where molybdenite (sulphide of molybdenum) occurs. The occurrence of molybdenite at Mulgine is of considerable interest in that up to the present the entire commercial supply of the mineral in Western Australia is being obtained from this locality. As this presented a more or less typical example, showing

the mode of occurrence and geological relationships of molybdenite, about ten days were devoted to a detailed geological survey of the vicinity; and the results plotted on five chains per inch, as being the smallest scale which the amount of essential detail to be shown admitted.

The locality where operations have been carried out lies on the western slope of Mount Mulgine and about 180 feet below the Trig. Station, or about 100 feet above the level of the main creek which crosses the western boundary of mineral lease M.L. 39 "Westonia." The discovery of molybdenite at this locality first came under the notice of the Department in 1915, with the receipt of a sample of ore at the office, which assayed 6.2 per cent. of molybdenum sulphide; molybdenite, however, had previously been reported from Gullewa, some distance to the north, where quartz, containing from 1.04 to 2.60 per cent. of molybdenum sulphide, occurred, indicating clearly that this western portion of the Yalgoo Goldfield lies in what may be called a molybdenite belt or zone.

Mount Mulgine itself is made up of an acid greisenised microcline-muscovite granite of varying texture, intersected by a network of veins of quartz and pegmatite, which when viewed broadly have a general north-westerly trend, and where seen in section are practically vertical. The granite, in addition to invading the neighbouring basic rocks, is traversed by several narrow dolerite (?) dykes which have a general north-easterly trend, and intersect both the quartz and pegmatite veins. The granite is made up of large quantities of quartz, microcline, oligoclase with muscovite and some pyrites. The felspars are occasionally almost entirely kaolinised. The accessory minerals in the granite are zircon, epidote, zoisite, apatite, tourmaline, ilmenite (or magnetite), and chrysocolla. The coarser pegmatites are made up mainly of microcline, quartz, and muscovite, and contain kaolin and pyrites in addition to small quantities of limonite and ferro-molybdite. The molybdenite occurs in the quartz and the pegmatite veins as well as in the granite itself; generally it is found in flakes which vary in size from minute specks to irregular masses, sometimes, though rarely, about half-an-inch in diameter. The molybdenite often appears as crusts in which the flakes lie in radiating groups, producing small rosette-like forms. In some cases the molybdenite is associated with and occurs in large masses and ill-defined crystals of iron pyrites. Occasionally, though not often, molybdic ochre having the characteristic yellow colour and a fibrous structure is to be noticed occurring in the glassy quartz associated with damourite (?), whilst in some of the pegmatites there occurs ferri-molybdite, the only common alteration product of molybdenite. Seldom, however, has the mineral been found so coarsely divided that it may be hand-picked; one solid vein, however, upon which operations had principally been confined, was about half-an-inch in thickness and occurred in the granite, which latter also contained molybdenite disseminated through it, though in quantitites which were governed by the distance from the vein itself.

The quantity of molybdenite to be found is at present difficult of determination owing to the very unequal distribution.

Another visit to Mulgine is contemplated, when prospecting operations will in all probability have opened up the deposits to a greater extent, and thus enable their essential characteristics to be better studied.

NOTES ON A PORTION OF THE SOUTH-WEST DIVISION.

(H. P. Woodward.)

In January a few days were occupied in examining one or two localities near Perth, while in the early portion of February an examination was made of a supposed coal-field near Mt. Kokeby.

Towards the end of February I left Perth in order to continue the geological survey of the S.W. Division, when it became evident that it was necessary that the area which lies to the southward of Bunbury, which had previously been mapped by Mr. Saint Smith, would have to be re-examined, owing to certain important fresh information being available.

During this re-examination numerous outcrops of basalt were discovered to the southward of Bunbury, which now clearly proves to be a sheet flow (as had been previously surmised), in every instance found to be overlaid by detrital deposits, soils, laterites, or ancient sand dunes. This basalt flow proves to be about 12 miles in width and runs in a north and south direction parallel to the Darling Scarp fault, and at a distance of about six miles to the westward of it from Bunbury to the South Coast, a distance of 80 miles, thus covering an area of, roughly, 1,000 square miles.

The western edge between Bunbury and the Ludlow River, exhibits clear evidence of marine erosion; it may, therefore, be assumed that it, at no very distant time, formed ledges and reefs along the old coast-line. This is further supported by the occurrence of deposits of soft, chalky limestone lying to the westward of the basalts at Capel, which contain marine fossils of existing types, thus proving that this portion of the coast has been elevated at a comparatively recent period.

It was also discovered that the Darling Scarp Fault bifurcates at a point a little south of the Collie River, one section of which continues in a south direction to the south coast, while the other sweeps away in a south-western direction towards Cape Naturaliste.

This is of considerable interest and importance when taken in conjunction with the behaviour of the fault line at Gingin, where it also splits, one branch following the normal direction while the other curves round to the coast at the mouth of the Hill River.

We have thus the old north and south fault and a more modern crescent-shaped one which follows the same fissure for a distance of 130 miles, in which section the scarp is naturally more accentuated. To the westward of this more recent fault is an area of sunk-land, now forming low-lying coastal plains, but beneath which strata of Cretaceous Age have been pierced by bores put down in the search for water. These beds apparently lie in a basin-shaped form, the deepest point being probably somewhere in the vicinity of Perth; this has been named by Mr. Jutson the Perth Syncline, or Artesian Basin.

The Collie-Naturaliste Scarp is distinct at the point of its departure from the main fault, the one face beyond and above the other being plainly visible from Waterloo Railway Station. This newer scarp,

however, gradually decreases in vertical elevation in a south-westerly direction, but is quite distinct as far as the Abba River, beyond which, however, its position can only be determined by the gradual rise from the practically dead level of the plains and the changes in the characters of the rocks.

During the conduct of this portion of the survey the reputed oil-bearing area, situated upon Abba River, was examined and a report furnished upon it. (Bulletin 74.)

The calcareous sand dunes at Busselton were also sampled by boring, and a report written for the Agricultural Department upon the result of the analyses of specimens obtained therefrom.

On the eastern side of the Cape Naturaliste-Leeuwin granitic ridge it had previously been stated in Bulletin No. 65 (following Mr. Saint Smith's interpretation, Bulletin 44, Plate II.) that no fault line existed; this is now found not to be the case, as a well-defined scarp fault is exposed running in a south direction from Dunsborough to the 33-Mile post on the Busselton-Augusta Road. This scarp is very bold and steep at its northern end, but gradually decreases in elevation to the point at which it crosses the road, beyond which no evidence of its existence is visible; the line of granite outcrops, however, are so straight as to indicate the continuation of the fault line without the scarp down to the south coast.

Eastward and southward of the Collie-Naturaliste Scarp and eastward of the Dunsborough-Augusta Scarp is a tilted plateau which falls gradually in a southerly direction. The rocks forming this consist of sharp, white siliceous sands, clays and laterite, which are proved by boring to represent the outcrops of soft sandstone, shales, coal seams, and pyrite beds, while along their contact with the granitic rocks along the Darling Scarp, near Donnybrook, a number of quarries of excellent freestone are being worked.

The southern portion of this plateau, which lies between the two parallel faults—which are here 40 miles apart—furnish a splendid example of "sunkland," since the whole block of some 1,600 square miles has been dropped, the greatest vertical displacement having apparently taken place upon the eastern margin of the trough.

The Darling Scarp retains its characteristic straightness to the southward of the Collie River, but does not present such a striking feature owing to the greater elevation of the ground level at its base. The fault-line can, however, be readily traced as far south as the Warren River, but southward of the Blackwood River it, like the western fault, does not present a sheer face, but is evidenced by the well-marked straight line of granitic outcrops.

Having previously expressed the opinion in Bulletin 65 that the series of rocks forming the lower plateau (which has been named the Donnybrook Series) were in reality a portion of a once much more extensive formation, which included the Collie Series, and that other basins would in all probability be discovered upon the eastern side of the Darling Scarp, a fairly detailed examination of the country in this direction was commenced, with the result that a considerable tract of these beds was discovered and mapped on the eastward side of Donnybrook.

In the course of this work an unforeseen difficulty occurred in consequence of the presence of an ancient river valley, which at one time wandered over what is now an elevated tract of country, and since the detritus deposited in this was composed of debris derived from the erosion of the Donnybrook Series, difficulties were experienced in defining the boundary of the latter. It was, therefore, found to be most expeditious to trace out the course of this old stream before proceeding with the search for the outliers of the Collie-Donnybrook Series.

In the course of this work it became evident that the deep leads of the Greenbushes Tinfield formed a portion of this old drainage system, which flowed in a north-westerly direction to Kirupp, from which place it turned westerly, and after cutting through the Darling Scarp, near Capeldene, is lost.

The last two months of the year were occupied upon a cursory examination of the country lying along the south coast to the eastward of the Great Southern Railway as far as the Oldfield River.

The evidence gathered on this last trip, taken in conjunction with certain facts previously determined, leads one to the conclusion that an important tectonic problem of considerable interest is gradually being solved, therefore it is hoped during the next field season to not only complete the delineation of the main fault systems which has disturbed the southern margin of the South-West Division, but to also determine the extent of the Tertiary Marine invasion which extended northward of the Stirling Range.

THE OCCURRENCE OF MOLYBDENITE AT NORTH DANDALUP.

(H. P. WOODWARD.)

Acting upon instructions, a visit was paid to North Dandalup upon 1st August, 1916, with the object of inspecting P.A. 244H, pegged out by Mr. Alexander Napier of that place.

This area is situated upon the Darling scarp, about three miles to the south-eastward of North Dandalup Railway Station and about two miles south of the North Dandalup River. It is perched upon a small terrace about 300 feet up the face of the escarpment which runs in a north and south direction, and is about 100 yards in width east and west at the point where the shaft has been sunk, but which gradually diminishes in width to the southward, ending at a distance of 300 yards.

This small terrace is situated between two granite cliffs, the lower of which rises abruptly from the coastal plain, being apparently the Darling Scarp Fault, while that which lies to the eastward of the shaft and rises steeply from the terrace is a branch from the main fault, trending in a more north-easterly direction. Along each of these fault planes there is a large vein of chalcedonic quartz containing a little pyrites in places, and it was from these reefs that gold was reported to have been obtained in the year 1896, upon the strength of which this district was proclaimed a goldfield. A large number of leases were pegged out and a considerable amount of development work performed with, however, such unsatisfactory results that they were eventually abandoned after two years' trial.

Some time ago Mr. Napier took up this prospecting area with the object of testing a greenstone bar which contained a large percentage of pyrites, it being the intention to concentrate this mineral and dispose of it for the manufacture of sulphuric acid. This vein was followed down to a depth of 50 feet without proving to contain a large enough quantity of pyrites to pay working expenses, while the gold contents was too low to add appreciably to its value.

At a depth of 50 feet a dyke of highly felspathic pegmatite was encountered which extended down to a depth of 71 feet in the shaft, where greenstone without pyrites was again encountered. The greenstone is too highly sheared and altered to determine its true character, but it is probably one of the series of dolerite dykes which are so common along this scarp. This intense shearing is due to its position between the two fault planes and to the intrusion of the pegmatite which has altered it for a considerable distance from its junction.

In this pegmatite dyke a small amount of molybdenite is present most commonly in a finely disseminated form, but occasionally small dabs of the mineral are met with, more particularly near the contact and also in the altered margin of the greenstone itself associated with crystals of felspar.

This deposit has been prospected by a vertical shaft which has been sunk to a depth of 71 feet, in which the rock was particularly hard below water level, which is 26 feet below the surface. The first 50 feet after the oxidised zone was passed through consisted of a hard pyritic rock, while below this to the bottom it consisted of a massive felspathic rock. At a depth of 50 feet levels were driven 15 feet east, 13 feet west, and 10 feet south with the object of discovering a defined body of ore, but, this failing, the shaft was continued down a further 21 feet, at which depth the pegmatite was again replaced by the greenstone, but here the pyrites were absent.

Although a small amount of molybdenite occurs in the margin of the greenstones, the pegmatite must be considered as the true ore body, therefore a sample of this was taken from the dump. This was passed to the Departmental Laboratory and tested, when it proved to contain only 0.11 per cent. of molybdenite, which quantity would not pay for treatment, particularly as a considerable loss is experienced in the extraction of this ore.

It may be here stated that the sample taken consisted entirely of the smalls from the dump, and was so taken to determine if there was any possibility of the ore being payable, since the smalls would contain the richest ore, as it fractures more easily when this mineral is present, the large solid lumps being practically barren.

From the above it is quite evident that the ore that has so far been exploited in this area is practically valueless, while, so far as can be judged from the scarcity of the richer portions, it would not even pay if hand picked.

After consideration of the above evidence it is, of course, impossible to declare this lode payable in the present state of development, but in consideration of the fact that a considerable amount of money has been expended upon it, added to which it is quite possible that further prospecting may reveal richer portions in the ore body, every encouragement should be given to the prospectors if they so desire to proceed further in this direction.

THE GRAPHITE DEPOSITS AT KENDENUP AND SURROUNDING DISTRICTS.

(T. Blatchford.)

Graphite in commercial quantities was first found on Plantagenet Location No. 27, at a spot some miles distant from the Kendenup Homestead, and on the south side of the Kalgan River.

Since this discovery, traces of the mineral have been found on location No. 12, to the east of the Great Southern Railway between the 48 and 49-mile posts, the mileage being that from the Port of Albany.

Also traces have been reported to the west at Mollyalup Lake, but such were not located by the writer, though there seems no reason to doubt that traces were found in this locality. The geology of the area is difficult to translate, as the surface is for the most part covered over with recent superficial deposits, and outcrops of the underlying rocks are rare, and do not exist at all to the south of the Kalgan River. North of the river granite outcrops, and it would appear that the river marks the junction of granite and probably sedimentary rocks. The graphite occurs in the latter rock. Unfortunately, the nature of these doubtful rocks could not in any instance be investigated with any degree of accuracy, as it is uncertain whether the unaltered forms outcrop at all, and in the mine workings the weathering extends below the deepest level yet reached and, in consequence, masks the characteristics necessary for definite classification.

The general features, however, would lead one to suggest a sedimentary origin, and there is every likelihood in the writer's opinion that the rocks represent much weathered schists, shales, or allied sedimentary beds.

The Graphite Deposits.

Kendenup Graphite Mine.

The accompanying plan* shows the extent of the workings of this deposit, with the exception of a few minor ones at the surface, since fallen in and inaccessible.

From the main shaft at a vertical depth of 50 feet, a drive west 20 feet in length passed through soft ground throughout which were grains of scaly crystalline graphite.

A sample taken across the back of the drive, about midway between shaft and end, yielded at the hands of the departmental Chemist 12.10 per cent. graphite.

From the same level a drive was put in eastward for a distance of 38 feet—towards the end this drive was diverted to the north, and in consequence resolved itself into half drive and partly crosscut.

At the extreme end of the drive a hard, siliceous band was encountered, the thickness of which was not determined. A sample of this siliceous rock was submitted to the Petrologist, who, on microscopic inspection, is definite in his decision that the rock represents a much crushed quartzite throughout which are innumerable small specks of graphite. Felspar is wholly absent, and the quartz veins show stress figures and uniform fracturing, evidences of strains induced in the rock since the rock was originally formed.

From here on, the drive was diverted to the east and continued for a distance of 20 feet, the hard band being on the north side of the drive. This portion of the workings could not be inspected personally owing to the fact that the whole of the drive had caved in and was completely filled up.

Starting from the shaft one can readily see the increase in the graphite contents as the quartzite is approached, until, lying up against the quartzite itself, extremely rich seams of the mineral are exposed.

* Not reproduced.

This is also borne out by a comparison of the rough samples taken, the value in percentage of graphite increasing in direct ratio with proximity to the quartzite band.

The mineral occurs for the most part in isolated scales, the long axes of which appear to run parallel to an indistinct foliation striking approximately east and west, and is fairly uniformly distributed. When the quartzite band previously referred to is approached, these scales are seen to increase in number and occur both in lenses and seams or veins in which the proportion of graphite exceeds that of the gangue, a picked sample yielding as high as 80.54 per cent. of the mineral.

The full extent of this enrichment was hidden from inspection owing to the caving in of the workings, and it is unfortunate for all parties concerned that the mining has been carried on in such an unsystematic manner. With proper mining equipment and at small expense the deposit could easily be developed to a depth of probably 100 feet, for the water is negligible to a vertical depth of 60 feet, and the ground, though heavy in places, is not "difficult" ground.

On the other hand, the deposit gives promise of paying its way from mineral won in development, for there should be considerable quantities of ore available, by hand-picking only, which would yield 60 per cent. graphite contents—a distinctly marketable and profitable product.

Shaw's Mine.

This property is situated almost due east from Kendenup (*vide* plan), and lies about 400 yards east of the 48¼ mile post of the railway line. At the time of my inspection there was practically nothing to be seen except one shaft, which had been sunk to a vertical depth of 25 feet—the rock pierced in this shaft was a much weathered clay, in which occurred numerous ironstone nodules. Traces of graphite in the form of minute specks and occasional small nodules indicated the presence of the mineral. A sample from the bottom of the shaft yielded 6.57 per cent. of graphite. The coarse mineral here is more in the form of plates than scales, and not uncommonly it is seen to be very fine in texture too. It does not assume the uniform scaly form of the Kendenup deposit.

Outcrops of the underlying rocks do not occur in the vicinity, and until a greater depth in sinking is attained, the nature of the rock will be undeterminable with any degree of accuracy, though in all probability it will be found to be a continuation of the same country as that in which the Kendenup deposit occurs.

The only other place in which graphite was detected was in the mud banks of the Kalgan River, between Kendenup Homestead and the mine of that name.

Here a sample of the ordinary swamp mud was taken, and on drying distinct grains of the crystalline mineral could be seen when examined under a microscope.

The graphite contents on chemical analysis proved to be 1.57 per cent.

This trace of graphite is important, as it tends to prove the existence of graphite other than in the Kendenup mine, for the spot where the sample was taken was above the mine, and the mineral could not possibly have come from that source unless the lode extended fully half a mile westward. It would be interesting to take samples further up the river to see how far these traces extend and thus, may be, locate their origin.

In addition to the samples of the crude ore, two samples were also taken of the concentrates bagged for shipping.

These yielded 46.63 per cent. and 54.38 per cent. graphite.

The concentration has been carried out in an experimental plant by first putting the ore in small vortex mixers and allowing the whole to flow on to a shaking screen with three compartments, the flow is into the centre compartment. In practice the fine argillaceous gangue is supposed to pass through the screen whilst the flaky graphite is supposed to dash out of the centre compartment into the two end ones and thereby form a concentrate. Unfortunately, it appears to have a reverse action, the fine graphite passing through the screen and the gritty gangue remaining on top. Certainly the concentrates do not exceed some of the crude ore in graphite contents. One of the reasons for this apparent mistake is the deceptive appearance of the size of the graphite scales, which appear on first sight to be much larger than they are, whereas probably 90 per cent. will pass a 40 mesh (1,600 holes to a square inch). In developing the mine, the writer would strongly recommend a system of mining whereby the richer or northern side of the lode would be opened out, and until the deposit was exploited sufficiently to warrant a proper concentrating plant, let hand-picking and shipping the crude high-grade ore be resorted to. The deposit should be well worthy of such treatment.

Appended is a locality plan, also a sketch plan of the Kendenup workings, and a list of and description of the samples taken with their results.

DESCRIPTION.

No.		Graphite. per cent.
1.	Taken from bottom of Shaw's shaft	6.57
2.	Taken at east end of drive, six feet from face, across back of drive	36.58
3.	Picked samples from one of the veins	80.54
4.	Bore-hole slightly inclined to the North about six feet deep	46.24
5.	Sample across back of drive, about 15 feet from face	18.22
6.	Sample, continuation of No. 5 into North Wall—where broken down	26.86
7.	Sample from back of West drive, about 12 feet west of shaft	12.10
8.	Shipping sample, 1st grade	54.38
9.	Shipping sample, 2nd grade	46.63
10.	Sample of alluvial in Kalgan River banks	1.57

THE KOOLYANOBBING IRON ORE DEPOSITS, YILGARN GOLDFIELD.

(T. BLATCHFORD.)

On account of the discovery of some very high-grade micaceous hæmatite iron ore in the vicinity of the Trig. Station on the Koolyanobbing Range, a second inspection was made, the primary object being to try and locate the boundaries of the deposit

and, if possible, ascertain whether any other deposits of a similar nature occurred in the vicinity.

The hæmatite deposit was found to be a lens of ore, the major axis of which was 170 feet and the minor 70 feet. From the sides of this lens veinlets of ore extend into the surrounding rock. Such were not included in the area marked out as the lens.

The ore in the lens is massive hæmatite, mixed to a certain extent with fragments of the quartzite, the staple rock of the range. The occurrence is apparently secondary deposition of iron ore in a brecciated zone. In consequence of the included foreign siliceous material, the value of the ore as a commercial product is considerably lessened which, taken in conjunction with its apparently limited area, detracts from the value of the deposit. One point in favour of greater quantities of ore being found than appear at the surface is the extreme magnetism where no iron shows at the surface.

This magnetism is particularly noticeable at and near the Trig. Station, the variation in the needle being so pronounced as to render magnetic readings from this point worthless.

As may be seen from the accompanying analysis, the picked ore from the hæmatite lens is practically free from sulphur and phosphorus, whilst the contained silica is very low, too.

Analysis of micaceous hæmatite, Koolyanobbing:—

Fe_2O_3	=	98·75 %=Fe, 69·13 %
SiO_2	=	1·04 %
P	=	·016%
S	=	trace.
Ignition loss	=	·39 %

—Analyst, D. G. Murray.

Lying to the west and abutting on the hæmatite lens a deposit of iron ore was noticed. The apparent course of this deposit was from the gnammahole on the flat, past the Trig. Station and extending to the bluff south of the Trig. Station.

Two samples were broken from the outcrops of this lode—one (C) immediately to the west of the Trig., and the other (D) near the southern extremity.

The samples were broken over a width of 150 to 200 feet respectively.

Under the present conditions it is impossible to be too definite as to the occurrence, for the surface is very much masked by the talus of the higher portion of the range. It would appear, however, that an extensive faulting has occurred and in the fault this extensive iron deposit has been formed. Another similar lode has been located north-west from the Trig. (*vide* plan). Two samples were taken from this deposit also. Of these, the first was taken across the dip on the face of the escarpment, the total width sampled being 200 feet. Sample (A). Another was taken 500 feet east of the first, over a width of 250 feet.

The results from these four samples were remarkably regular and gave a high percentage of metallic iron. The percentages of silica, phosphorus, and sulphur were also very low. Unfortunately, time would not permit of an investigation of the whole of the range, but judging by the faulting marked out by my colleague (Mr. C. S. Honman) during his inspection, it is highly probable that similar deposits would be located if the range were thoroughly inspected. The sampling, it should be noted, was not undertaken to prove the value of the deposits but only as a preliminary inspection to ascertain whether they were worthy of further notice, in the view of opening up iron deposits for commercial uses.

However gratifying the results may seem there is still much work to be executed before any definite data can be put on paper. The preliminary assays should first be checked and an attempt made to find other, and perhaps, larger deposits which may be even more accessible than the present ones under notice. If such investigations proved satisfactory the expenditure of capital to prove the extent of the deposits would then be warranted. This could be done in three ways: Shaft sinking and cross-cutting, driving adits along the lodes from the sides of the range, or boring. Several factors arise in deciding the best of these three.

In the first place, before an iron lode can be considered a commercial proposition the following must be taken into consideration.

Extent of deposit, grade of ore, working costs (including freights).

From the preliminary sampling the grade appears to be high and very regular, and may be considered of secondary importance to tonnage. For this reason it appears that boring would be the proper method to adopt, as the deposits could be proved to much greater depths by boring for the same expenditure, and at the same time, fair samples taken from the cores. Unless mining operations were extended to considerable depths they would not be of any use in working the deposits, for if at any time they were mined, open cutting or quarrying would be resorted to for at least 100 to 200 feet from the outcrops.

As regards transportation, a branch line from the main trunk line could easily be laid over level country, the total distance being not more than probably 30 to 35 miles, the connection being at Southern Cross, or thereabouts, a distance of, roughly, 240 miles from Fremantle. The ore, being at no great distance from the trunk line, would make excellent back loading.

Analyses of four samples of Iron Ore from Koolyanobbing for Mr. T. Blatchford, by E. S. Simpson.

G.S.L. No. ..	9618.	9619.	9620.	9621.
Mark	1	2	3	4
	%	%	%	%
Fe_2O_3	90·30	88·33	86·76	86·44
equal to Fe	63·21	61·85	60·73	60·51
SiO_2	2·02	4·78	2·40	3·08
S	·06		·04	
P	·01		·006	
Gold (per ton) ..	trace.	trace.	10grs.	16grs.

The sulphur and phosphorus were determined in mixtures of equal proportions of the component samples. The undetermined is mainly combined water.

These are high-grade brown iron ores of the non-phosphoric class, suitable for the manufacture of

steel by the acid Bessemer, Open Hearth, or Electric processes.

The principal constituents are:

Of (1) and (2) Turgite and Goethite;

Of (3) and (4) Goethite.

WESTONIA, YILGARN GOLDFIELD.

(T. Blatchford.)

A short report on the Westonia Field is to be found in the Annual Report of 1914. Since that date the field has advanced considerably, more especially in and around the Edna May group.

The Edna May lode has come up to expectations as a gold producer and maintained the high grade of approximately one ounce per ton for all ore crushed to date. This lode has been located in the "Deeps" ground at a vertical depth of 485 feet, but, unfortunately, developments here tend to prove a shortening of the richer portion of the lode. However, this has been compensated to a certain extent by the opening out of a new lode in the Edna May Central, the probability of which was pointed out in the 1914 Report of this Department. It is highly probable that the new lode in the Consolidated mine is a repetition of the occurrence, and that eventually further lodes will be found by prospecting along the southern contact of the gneiss and greenstone in consolidated ground.

So far there has not been a fresh discovery of payable gold outside the gneissic area in the immediate vicinity of Westonia.

At Battlefield, the Great Battler and Battler have amalgamated and started crushing ore. The combined lode is too small to be of any mining importance. Other than from Stone and Browne's mine, the Perth M., no appreciable amount of stone has been won from the numerous leases in this vicinity. As regards the Bullfinch Area, mining is at a very low ebb. The Bullfinch mine is not developing satisfactorily at depth, for though the lodes exist the values are steadily declining with depth.

There have been no new finds of importance in this district for some time, though occasional rich crushings show that prospecting is still in progress. A big blow to the mining industry of the district is the closing of the Corinthian Gold Mine at Corinthia. This was one of the lowest-grade working mines in the State, and, though showing a small profit under pre-war conditions, could not apparently stand the extra cost of materials and existing labour conditions, both of which the war was responsible for to a more or less degree.

EXPEDITION TO THE WARBURTON RANGES AND THE SOUTH AUSTRALIAN BORDER.

(H. W. B. Talbot and E. de C. Clarke.)

Introductory.

In May, 1916, the Minister for Mines directed that a reconnaissance survey be made to the Warburton Ranges (300 or 400 miles east of Laverton), the object of the undertaking being the search for new tracts of metalliferous country.

After the delays inseparable from the equipping of such an expedition, the party, consisting of two field geologists (H. W. B. Talbot in command and E. de C. Clarke), four camp assistants and sixteen camels, left Laverton on June 29th, 1916, carrying provisions for six months.

The object of the expedition being the geological exploration of the country near the Warburton Ranges, the easiest and most direct route, in the main that discovered by F. Hann in 1903, was followed to the Townsend Ridges, which were reached on 18th August, progress having been delayed by trouble with the camels. At the Townsend Ridges a Depôt Camp was erected, from which the geologists with one assistant and five camels made three flying trips, which lasted from the 21st to the 28th of August, from 30th of August to the 19th of September, and from 23rd to the 28th of September respectively. On the night of the 10th of September the travelling party was attacked by blacks, H. W. B. Talbot and J. W. Johnson being wounded. After returning to the Depôt Camp Johnson failed to make a recovery and evidently required expert treatment. The whole party, therefore, returned to Laverton, the journey occupying 31 days (4th of October to 6th of November).

The time-and-compass traverse, which was carried on throughout the trip and was supplemented by frequent observations for latitude, closed very satisfactorily on the Trigonometrical Stations on Mts. Gosse and West near the South Australian Border. It should be added that a copy of Mr. Hann's journal of his 1903 expedition was, during the journey to the Townsend Ridges, referred to constantly and found to be of very great service. The writers wish to express their admiration for the valuable work done by Mr. Hann under most adverse conditions.

Physiography and Geology.

Physiographically, all the country traversed is part of the great plateau of Western Australia. Two distinct varieties of plateau country were, however, recognised:—

(1.) That between Laverton and the Warburton Range, consisting mainly of sandhill country, is of the type usually designated "desert."

(2.) That between the Warburton Range and the South Australian Border is characterised by the presence of many isolated hills, and separated groups of hills, rising to heights varying from a few feet to 1,400 feet above the plateau level.

Watercourses are small and end on the plains or sandhill country a short distance from the hills or breakaways in which they rise.

The two above-mentioned types of topography are the outward expressions of marked geological differences: between Point Salvation (about 85 miles east of Laverton) and the south end of the Warburton Range, the only rocks (with the exception of some volcanics at Table Hill, a few miles south of the Townsend Ridges) are sediments, believed to belong to two periods of Palæozoic times; while the Warburton Range and the country east of it are built up of metamorphosed rocks which have been very extensively intruded by later basic rocks.

It is obvious that, remembering the briefness of the expedition and the area covered (about 2,500 sq. miles, exclusive of the strip 370 miles long between Laverton and the Warburtons), general conclusions

only are possible regarding the geological structure of the tract concerned.

The formations noted may be classified as follows:—

1. SUPERFICIAL DEPOSITS.—Talus, sand, loam, travertine, laterite.

2. PERMO-CARBONIFEROUS STRATA.—These extend from Dunge's Hill, near Point Salvation to Axe Hill, near the Townsend Ridges. They consist, in the main, of horizontally bedded sandstones (frequently showing strong current bedding) and fine mudstones. At Dunge's Hill these rocks lie on an irregularly eroded granite surface. No fossils have been found in them, but they are seen at various places between Lily Rock Hole and Axe Hill to include a boulder-bed about 15 feet thick. Many of the boulders show signs of ice action and the bed was probably formed in a shallow sea of the debris dropped from floating ice which had broken from glaciers descending to sea-level from high land to the north. This interesting deposit suggests the correlation of the beds under discussion with the Permo-Carboniferous glacial deposits of the Irwin River and other places in Western Australia* with those of the Finke River,† and with the well-known occurrences in South Australia and the Eastern States.‡

3. OLDER PALAEOZOIC STRATA.—A series consisting, in ascending order, of volcanic conglomerates and lava flows, grits, greywackes and quartzites, dipping south at about 20°, extends eastwards from the south end of the Warburton Range beyond the limits of this reconnaissance and, at right angles to the strike, from the Townsend Ridges for six miles north. It rests unconformably on the older rocks to be described presently, but its relation to the Permo-Carboniferous Strata has not been seen.

This series may tentatively be grouped with the Ordovicians of South Australia,§ but similar rocks with similar stratigraphical relationships occurring at the Albert Edward Range, East Kimberley, have been classified as Devonian.‖

The most interesting members of this series are the quartzite which forms the bold, north-facing escarpment of the Townsend Ridges, and the volcanic conglomerate occurring at the base of the succession. The conglomerate is considered by Mr. Farquharson, the Survey Petrologist, to be formed of the ejecta of some volcanic vent which was active during the deposition of the bed, and which was possibly also the vent from which the Table Hill volcanics flowed. He points out also the resemblance between the conglomerate and certain fragmentals occurring at Meekatharra and Mt. Singleton. It is also possible that the dolerite dykes which, in many places intrude the metamorphic complex and which show marked similarity to the dolerite dykes of Sandstone, Meekatharra, etc., were contemporaneous with this volcanic activity.

4. BASIC INTRUSIVES.—These rocks occur in the east-central portion of the metamorphic complex apparently as great dykes and batholiths intruded into the acidic metamorphics. The Blackstone and Cavenagh Ranges and many lesser hills are formed of these rocks, which are coarse gabbros and norites. In the Cavenagh Range they have been intruded by the dolerite dykes mentioned in the preceding section but do not appear to have been subjected to dynamic metamorphism.

5. METAMORPHIC COMPLEX.—As already stated, the country east of and including the Warburton Range which was traversed by this expedition is mainly composed of metamorphic rocks. They are divisible into:—

(a.) *Metamorphosed Acidic Rocks.*—These are the predominant rocks of the complex. Mr. Farquharson's examinations show that, while ranging from fine-grained quartz porphyries to coarse gneissoid rocks, with some interesting local modifications into granulites, etc., they form a petrographic unit. The coarser varieties are developed in the eastern part of the area, while in the western part the finer-grained varieties occur as a marginal facies and as great dykes (marked at the surface as long, fairly continuous lines of hills) which, running in a direction slightly north of west, intrude the greenstones described below.

In some places the acidic rocks have been considerably affected by dynamic metamorphism, in others they appear to have escaped it.

Whether the porphyry dykes have exerted any mineralising influence on the greenstones, has not been observed.

Between Laverton and Point Salvation the greater part of the country is composed of granite, specimens of which have not yet been examined microscopically, but which appear on megascopic characters to belong to a type distinct from the acidic rocks above described and probably similar to those described by Gibson* from the neighbourhood of Laverton.

(b.) *Metamorphosed Basic Igneous Rocks ("Greenstones").*—Practical interest attaches to these, for, from analogy with mining areas in Western Australia, it is in the greenstones that auriferous deposits may be expected. So far as the writers have been able to ascertain, greenstone country covers a roughly triangular area of about 300 sq. miles, extending from the Warburton Range eastward to Mt. Weir. The greenstones are of the type usually met with in Western Australia, but there is in the specimens collected a predominance of little-sheared, "unkindly" country. This is inevitable since here, as elsewhere, the softer, "kindlier" rocks have yielded to weathering and are covered with debris.

In parts of the greenstone areas quartz veins are very numerous and a few indications of the presence of mineralised zones of country were also seen. Although the few samples collected by the expedition yielded little more than traces of gold, the area would deserve further prospecting if not so far removed from all mining facilities that only exceedingly rich "shows" could be worked at a profit.

In any case, before prospecting could be safely or economically carried out it would be necessary to sink at least two reliable wells along the desert route from Laverton to the Townsend Ridges; to sink a good well in the Warburton Ranges; to look for a further exposure of greenstone country between the Warburton and the Rawlinson Ranges.

* A. Gibb Maitland "Relics of the Permo-Carboniferous Ice Age in Western Australia." Jour. Nat. His. and Sc. Soc. of W.A., Vol. IV.

† Austr. Assoc. Adv. Sc., Sydney, 1898, "On the Occurrence of Glacial Boulders at Finke Valley, Central Australia."

‡ See various reports of the Glacial Research Committees in the publications of the Australasian Association for the Advancement of Science.

§ R. L. Jack, "Geology and Prospects of the Region to the South of the Musgrave Ranges," etc. Geol. Surv. S.A. Bull. No. 5, p. 23.

‖ E. T. Hardman, "Rep. on Geol. of Kimberley," Perth, By Authority, p. 31.

* G.S.W.A., Bulletin No. 24, page 14.

Two small belts of greenstone country were traversed in the early stages of the journey from Laverton. That at Mt. Sefton, 55 miles east of Laverton, is possibly continuous with the Cosmo Newberry greenstones.* That at Point Salvation may be continuous with the Mt. Shenton belt.†

Of these, the Point Salvation belt appears the more promising. The soak at Point Salvation would probably form a reliable base for a prospecting party.

COMET VALE.

(J. T. JUTSON.)

The following notes represent a progress report of the geological work carried out at Comet Vale, and are subject to revision on completion of the survey.

SITUATION AND TOPOGRAPHY.

Comet Vale is situated on the Kalgoorlie-Laverton railway, and is about 60 miles north of Kalgoorlie. The township is a long straggling one on the western side of an ironstone ridge. As a mining belt it is very limited in superficial area.

The *physical features* of the district may be divided into (a) rocky hills and gullies, (b) sand-ridges, (c) sand-plains, (d) "dry" lakes. The rocky hills comprise isolated eminences, such as Baker's Look Out to the west of the town, and the ironstone and greenstone ridges which stretch eastwards from the town to the shores of Lake Goongarrie. These ridges are the remains of an elevated tract (rising probably 200 to 300 feet above the floor of Lake Goongarrie) which has been cut into a maze of small, steep, narrow V-shaped valleys, which, however, are dry, except after heavy rain. The sand-ridges are a notable feature at Comet Vale. So far as examined, their dominant trend is approximately east and west with some variation, however, on either side of this line. Other directions occur, but that stated is believed to be the most common. Individually they may rise 50 or 60 feet above the surrounding country, and may extend for several hundred yards; some are steep-sided whilst others possess much more gentle slopes. Vegetation, but in varying quantities, occurs on all of them. The sand-plains are extensively developed on the west, but are also found to the north and to the south. From the wide, sandy, comparatively low-lying area to the west, the sand has drifted evenly and steadily up the lower slopes of the ironstone ridge immediately to the east of the township, until in some instances it has reached some of the passes in the ridge, and passed over to the eastern side of the latter. The steady eastward drift of the sand by the wind is thus clearly marked. The "dry" lakes comprise the large area known as Lake Goongarrie, which runs southward from Comet Vale to Goongarrie, on the eastern side of both places, and which is several miles wide. Smaller lakes lie to the south-west of Comet Vale. The silts of the lakes contain salt and gypsum; and "kopi" occurs in places. Lake Goongarrie is fringed by steep rocky cliffs along portions of its western shore. The presence of sand-ridges, sand-plains, and lakes renders travelling somewhat difficult away from made roads.

* Gibson, G.S.W.A., Bull. No. 24, pp. 66-71.
† Gibson, loc. cit. pp. 1-73.

VEGETATION.

The vegetation is considerably varied, but calls for no special remark here other than to notice the stunted character of most of the trees, and the consequent dearth of first-class mining timber. "Mulga" and mallee gums are the predominant trees, while on much of the sandy country, spinifex is abundant.

WATER SUPPLY.

Surface supplies can hardly be said to exist. Outside of the high dissected country to the east, watercourses do not occur, and on the sandy areas the rain soaks immediately into the ground, or spreads over the surfaces of the "dry" lakes, where it becomes salt and undrinkable. No natural surface fresh water catchments exist, except an occasional clay-pan.

Most of the underground water, so far as examined, has too much mineral matter to be of any value as a domestic supply; and has only a limited use for mining purposes. The water obtained from the Sand Queen line of reefs is extremely salt, but in that from the lower sandy country a little to the west, there is less (it is stated) mineral matter. Water has to be brought by train to keep the mines going, as well as—in a dry season—for domestic use.

GENERAL GEOLOGY.

The main rock masses of the district may be roughly and provisionally classified (using field terms only) as fine-grained greenstones, schists, "talc rock," granite and acid dykes (comprising aplite, porphyry, and other related rocks). In addition there are some possible sediments and various superficial deposits.

The *fine-grained greenstones** are found in two areas, namely, the main mining belt (on which the township is situated), which runs about north-north-west, and the much dissected belt of high country abutting Lake Goongarrie on its western shore. The latter area is the larger, but it has comparatively few reefs, only one definite line (the "Tunnel line") of any length having yet been located. The greenstones are usually fine-grained and tough, but they are roughly foliated in places. In the larger area they outcrop at the surface, but in the smaller (main) belt they are covered by drift sand overlying water-borne detritus, and the main reefs are hidden from view at the surface.

The *schists* occur in the main mining belt associated with the fine-grained greenstone and the "talc rock" (*see* below) in narrow bands, and they appear derived in part from the greenstone, and in part from the talc rock. They are much decomposed at the surface, but below they are fresher, and are talcose and chloritic. They strike about north-north-west, but at the Happy Jack mine they are running approximately east and west. To the north-west of the town a narrow belt of basic rocks, consisting largely of hornblendic schists, is found, in which the group of reefs known as the Lady Margaret line occurs. The strike here is about north-west, but swinging round more to the north at the end of the belt, *i.e.*, at the old Lady Mack lease. Schistose rocks, associated with the fine-grained greenstones, also occur on the western shore of Lake Goongarrie.

* A specimen from the Sand Queen mine has been determined by the Petrologist as an epidiorite.

The *"talc rock"* is a name that has been given locally to a basic but considerably decomposed rock which carries talc veins. It apparently underlies the area of ironstone that caps the country immediately to the east of the township. It is possibly the source —either directly or indirectly—of the chromium which occurs as a secondary product in the overlying ironstone, and as crocoisite (chromate of lead) in the Happy Jack mine. Talcose schists are associated with the "talc rock" as already noticed. The Happy Jack lode may be merely a highly altered and mineralised band of this same rock.

The *granite* occurs as an extensive belt of country to the west of Comet Vale and to the west of the rock formations already described. It has not yet been traced to the south of Comet Vale; but to the north it crosses the main road and railway, and thus apparently severs the auriferous rocks of Comet Vale from those of Menzies, but this point has not yet been fully worked out. When fresh the granite is grey in colour with hornblende in addition to quartz and felspar. It has not been proved to be auriferous. A mottled white, yellow, brown and red decomposed rock occurs at the northern end of the township. This has been quarried and used as a building stone, as it is soft and easily cut. It probably represents a decomposed stage of the granite found to the west and farther north.

The granite is apparently of later origin than the rocks already described.

Acid dykes.—Acid dykes of various types occur, the most important being porphyry. The last-named rock is intrusive into the fine-grained greenstones and schists. It occurs both massive and highly foliated, and is frequently associated with the quartz reefs. Dykes of granite and aplite (the latter having a pegmatitic phase as well) also occur. They are both intrusive into the greenstones and schists, and the aplite intrudes the porphyry. Thin aplite dykes are rather common along the Lady Margaret line of reefs.

Some rocks, which are possibly *sediments,* occur associated with the fine-grained greenstones in the cliffs of the western shore of Lake Goongarrie, but they have not yet been carefully examined.

The *superficial deposits* are so abundant as to largely obscure the underlying rocks except the Lady Margaret belt, and the larger area of fine-grained greenstones to the west of Lake Goongarrie. These deposits comprise the ironstone (laterite) which caps the hills immediately to the east of the township, the sand ridges, the sand of the sand plains, and the silt, salt, and gypsum of the "dry" lakes. With the laterite are associated further secondary products from the underlying rock, such as veins and irregular patches of magnesite, quartz, common opal, chalcedony, and the chromium mineral plasma. The laterite itself is in places chromiferous. Alluvial deposits directly due to ordinary water action are scanty. Very little alluvial gold has been found and, so far, none of the superficial deposits have been proved to be of economic importance. Some of them are more fully referred to under the topography of the area. These abundant superficial deposits are, from a lode-gold-mining standpoint, a serious drawback, as they have hidden some now known reefs, and probably still hide others.

Lodes.

The gold-bearing lodes of the district may be divided into quartz reefs and lode-formations. The former comprise practically the whole of the lodes of the district, the latter being restricted, so far as known, to the Happy Jack lode. The quartz reefs may be divided into three main groups, the Sand Queen-Gladsome line, the Tunnel line, and the Lady Margaret line. The Sand Queen-Gladsome line comprises the two main mines of the district, the Sand Queen and the Gladsome. Its strike is about north-north-west, and its usual dip is to the west. There are two lines of reef—the Main and East reefs—the former, as the name implies, being the more important. The Tunnel line is situated to the east of Comet Vale, and runs west-north-west from near Lake Goongarrie to the northern end of the township. The prevailing dip is southerly. The Lady Margaret line lies to the west of the Sand Queen belt, and runs about north-west, turning more to the north at the northern end (*i.e.,* at the old Lady Mack lease) with a prevailing south-westerly dip. Some reefs reach a thickness of from six to eight feet, but others are on the thin side. A large "blow" exists on the Tunnel line. No serious disturbance of the reefs appears to have taken place.

Various minerals are associated with the reefs, such as pyrite, galena, calcite (including Iceland spar), epidote, scheelite, selenite, anglesite, analcite, and other minerals.

The Happy Jack lode-formation, which strikes approximately east and west, is composed chiefly, as far as worked and as could be seen, of soft decomposed schistose material. It has some curious nodules of secondary silica. The lode also carries an abundance of chromate of lead (crocoisite).

Copper ore has been found in quartz and schist in the district, and has been mined to a small extent, but was evidently not payable.

With what rocks the lodes are associated has been stated above when describing the various rock groups.

The Sand Queen-Gladsome line is the principal line now working, but an option has recently been taken over the Happy Jack, and some work is in progress there. The Sand Queen is the deepest mine, and the shaft is now being sunk to open up a level at 800 feet. The Gladsome is the next most important mine, and it is being gradually developed.

Prospecting for New Lodes.

Owing to the heavy cover of sand and other superficial deposits, prospecting for new lodes is a matter of difficulty. To the north of Comet Vale, the non-auriferous granite appears to be cutting off the auriferous quartz lodes. To the east the rocks are exposed, and most reefs have probably been discovered, except possibly under the hard ironstone cap immediately to the east of the township. To the south (towards Goongarrie) insufficient observations have yet been made to make any suggestion beyond the fact that the Sand Queen-Gladsome line of reefs may probably occur further south than yet discovered. The area to the west between the Sand Queen-Gladsome line and the Lady Margaret line seems the most favourable for the occurrence of lodes, as it may be greenstone country, and it lies between the two lines just mentioned; but the surface is covered with superficial deposits of apparently considerable thickness, which renders ordinary prospecting practically out of the question. Moreover, the water level is at shallow depths in places. Boring might be tried here with some chance of success.

WARRIEDAR, YALGOO GOLDFIELD.

(F. R. Feldtmann.)

The survey of Warriedar was commenced early in August, and together with that of certain outlying groups of leases, was completed towards the end of November, 1916. About four square miles of country were mapped in detail, while most of the surrounding country was inspected, in company with the Government Geologist.

General Remarks.

The township of Warriedar is situated five miles west of the prominent hill of the same name, and 56 miles, as the crow flies, S.S.E. of Yalgoo (about 70 miles by road). The nearest railway siding is Perenjori, on the Wongan Hills line, 50 miles to the W.S.W., as the crow flies, and between 60 and 70 miles by road. The main group of leases—the Porcupine group—lies to the west of the town.

Topography.—Immediately to the west and south of Warriedar, the country is strongly undulating. To the north-west, however, the country, after a short distance, is comparatively flat, as is also the area to the south of Mt. Mulgine. Another flat stretches between the township and Mt. Warriedar. The undulating country, particularly in the valleys, is covered by dense low bush. Unlike most mining centres in the Murchison Goldfield, gums are comparatively common.

While in the immediate vicinity of Warriedar the trend of the country is approximately W.N.W.-E.S.E., between it and Yalgoo the general trend, judging by the strike of a long range of hills which, with a few breaks, runs north from Mt. Warriedar nearly to Yalgoo, is in a N.N.W.-S.S.E. direction.

General Geology.—The above-mentioned range of hills is composed, at and in the vicinity of Mt. Warriedar, of a series of sedimentary rocks, mainly quartzites, which near the mount strike about north-west and south-east, and dip steeply to the south-west. Near their south-west boundary, which runs about 1¼ miles to the north-east of the town and through the St. Patrick's Day group of leases further to the north-west, this sedimentary series consists of pale grey, fissile shales. Similar shales, evidently belonging to the same series, are found occupying a small range of hills (Trig. Station B.A. 10), about 7½ miles to the W.S.W. of the town; numerous lenses of jasper resembling those in the greenstones are found in the shales on this range. Between this range and the south-western boundary of the Warriedar sediments, the country consists of greenstones of a doleritic character, generally coarse in grain. Mt. Mulgine, six miles to the S.S.W. of Warriedar township, is in an area of granite which runs north as far as the Highland Chief group of leases, 5½ miles south-west of the town and 1½ miles north-west of Mt. Mulgine. The granite evidently extends over a considerable area to the south. The Mulgine granite is intrusive into the doleritic rocks, but no evidence is at present available, in this district, as to its relationship to the sedimentary series. According to Mr. Maitland, however, the granite between Mt. Singleton and Mt. Gibson, further to the south, with which the Mulgine granite may be genetically connected, is intrusive into the Warriedar sedimentary series.

The Rocks.

(1.) Dolerite and Allied Rocks.—What may be regarded as the type rock of Warriedar is found occupying a strong ridge running through the Aurum lease, and extending for a considerable distance to the west. It is a dark greenish-grey rock, moderately coarse in grain and of a distinctly doleritic appearance in the hand specimen. The ferro-magnesian mineral predominates, and is now probably largely represented by hornblende.

Although the type rock is doleritic in appearance, numerous outcrops of a much coarser, gabbroid type occur, particularly on a parallel ridge to the north of the leases. In these, also, the ferro-magnesian mineral predominates, and appears to be largely a very coarse bladed hornblende.

A few examples of fine-grained varieties occur; these may either represent original small, local, fine-grained facies of the dolerite, or be due to recrystallisation, most probably the latter, as they usually occur in the immediate vicinity of the lodes or jaspers. That they have, in some instances, undergone considerable dynamic strain is evidenced by a very pronounced sheeted structure in the vicinity of the lodes in the Aurum and Ironclad leases; in the former, the sheeting is horizontal; in the latter, vertical.

A marked development of talcose rock occurs at the old water-shaft on Block 6; it is found on the dump associated with a somewhat weathered and altered form of the type-dolerite from which it is probably derived.

At the Highland Chief group the greenstone is much finer in grain, and though of doleritic appearance, is probably completely amphibolised.

(2.) Granite and Allied Rocks.—The granite of Mt. Mulgine, with which are associated the molybdenite deposits, varies greatly in texture and relative proportion of its mineral constituents, but may be briefly classified as a microcline-muscovite granite. Usually of medium grain, coarse pegmatitic phases are common, as are also glassy veins and reefs —the molybdenite being associated with all three along certain lines. At and near the Highland Chief Group, the granitic rock is much weathered and is, for the most part, obscured by soil and surface debris; it is comparatively fine-grained, highly micaceous, and usually shows a schistose structure.

Numerous tongues run out into the surrounding doleritic rocks; most of these resemble the main body of the rock, but in a few cases they pass into a type resembling a fine-grained quartz-porphyry with fairly coarse quartz phenocrysts. A striking feature in the vicinity of the Highland Chief—particularly on a small steep hill a quarter of a mile to the south—is the number of parallel quartz reefs striking about W.N.W.-E.S.E.

(3.) Later Basic Intrusives.—A few narrow dykes of a fine-grained dark-green rock, possibly a basaltic dolerite, are found intruding the Mulgine granite. Others, doubtless, occur in the vicinity, possibly in the older doleritic rocks, where they would readily escape observation except in detailed mapping. They appear to be the youngest rocks of the district, and are probably post-gold.

(4.) Superficial Deposits.—These include—

(a) Laterite.

(b) Soil, etc.

(a) *Laterite.*—Lateritic deposits both of the high-level and low-level types cover an extensive area in this district.

The high-level deposits are usually found associated with jaspers on ridges, with, in places, a steep escarpment facing to the north. They are also found capping the weathered granitic rocks, the shales and, occasionally, the weathered doleritic rocks; as a rule, however, the dolerite ridges are composed of fresh unweathered rock. The high-level laterites vary, of course, in composition as the underlying rock.

Deposits of the low-level type are found covering the doleritic rocks in the lower portions, and usually the southern sides of the valleys mentioned below. They have evidently been formed by the recementing of the weathered rock debris by ferruginous matter.

(b) *Soil, etc.*—Parallel to, and separating the numerous dolerite and jasper ridges are comparatively narrow valleys, probably containing a fair depth of soil. These valleys are usually marked by well-defined creeks, the bottoms of which are, in places, covered by "cement," so that after heavy rains the various rock-holes retain water for a considerable period.

The Jaspers and Ore Deposits.

(1.) The Jaspers.—Four well-defined lines of jasper run through or immediately to the south of the Porcupine group of leases. Within the area mapped in detail the general strike is slightly north of west.

The northernmost bar runs through the Mug's Luck, Ironclad North, Ironclad and other leases, where it is cut and faulted by the lodes and minor fault planes. In the Mug's Luck the horizontal displacement is about 230 feet. The second jasper runs through Blocks 5, 6, and 7. Within the limits of the map it has apparently been faulted only at one place, south of Block 8. This jasper is, in places, obscured by laterite. The third and fourth bars run about 12 and 20 chains, respectively, south of the second bar. They occupy some of the highest ground in the vicinity of the leases, and are much obscured by laterite.

The usual dip of the jaspers is to the north, at steep but greatly varying angles, though they are occasionally vertical or even show a slight local dip to the south. They are usually composed of alternating laminæ of dark purplish-brown iron ore and pale yellowish-brown flinty siliceous matter.

A line of shearing, which may be regarded as an incipient jasper, runs about 36 chains north-east of, and parallel to the first bar.

(2.) The Lode Formations.—There are four main lines of lode in the Porcupine group of leases, namely, the Mug's Luck-Aurum, the Warriedar, Porcupine, and Ironclad lodes. The strike of the first three is about N.N.W.-S.S.E., that of the last-named about N.N.E.-S.S.W. The three former dip W.S.W. at from 40 to 60 degrees, the dip of the Ironclad lode is to the E.S.E. at nearly 70 degrees. All fault the jaspers and must be regarded as normal fault zones with the downthrow to the W.S.W. in the case of the first three, and to the E.S.E. in the case of the Ironclad. Relative to the jaspers they vary between dip and oblique faults. In the Porcupine lease block faulting appears to have taken place. The horizontal displacement of the jaspers along the fault or lode lines varies from about five feet in the Ironclad to about 230 feet in the Mug's Luck lease.

The above-mentioned lodes are not of any great length; they appear to die out a little to the north of the first jasper, and seldom reach more than halfway to the second bar.

The fault previously mentioned as affecting the second jasper south of Block 8 is obscured by superficial deposits; since the other main fault lines are now occupied by lode formations, it might be advisable to take this line in search of values.

In addition to the above formations, a small cross lode occurs on the Warriedar lease, about 100 feet south of the north boundary, and running between the Warriedar and Porcupine lodes. This was being worked at the time of my survey, and was said to carry good values.

The lodes are usually marked at the surface by outcrops of very dense, hard, bluish-black iron ore, containing about 50 per cent. of metallic iron. In the oxidised zone they consist mainly of lenses of dense iron ore, kaolinic material, variegated opaline matter sometimes coloured by copper ores, and some asbestiform hornblende locally known as "woolly nose"; quartz stringers are present in places. Where the lodes were visible below the oxidised zone there was a good deal of dense white pyrites. Values occur in shoots and appear to be somewhat erratic. As with the Jasper Hill lodes, dish prospects seldom give a good idea as to values, and in most cases the ores seem to require sliming and cyanidation for successful treatment. Bismuth, probably in the form of the carbonate, is sometimes present, usually associated with quartz; this is particularly characteristic of the Warriedar cross lode.

(3.) Quartz Reefs.—(a) *In the Dolerite derivatives.*—A fair number of quartz reefs outcrop in the mining area between the first and second jaspers. In the Aurum and Warriedar leases, a few of these reefs strike roughly parallel to the lodes—they carry little or no gold. The majority are more or less parallel to the jaspers in strike, and are found to cut the lode formations; unlike the jaspers, these reefs usually dip to the south. Some work has been done on the reefs in the Warriedar, Porcupine and Porcupine South Extended leases, but the gold values do not appear to have been satisfactory—in the last-named lease the reef strikes about north-east and south-west, and dips to the south-east. These reefs are seldom more than seven or eight chains in length, and vary in width from a few inches up to about four feet, averaging about a foot. Fair values have been obtained in a few of the reefs, but the majority do not appear to be payable propositions.

To the west of the leases, a few reefs were observed to run into the second jasper from the south, and these junctions might be tested in search of small patches.

A few short reefs occur in the St. Patrick's Day group to the north, close to the junction with the shales. They usually strike about north-east and south-west, and dip to the south-east. A crushing from ore on G.M.L. 785 is said to have given good returns.

In the doleritic rocks at the Highland Chief, near their contact with the granite, are occasional small reefs or veins carrying small quantities of molybdenite.

(b) *In the Granitic Rocks.*—As mentioned above when dealing with these rocks, a great number of parallel reefs, strikingi W.N.W.-E.S.E., occur in the

vicinity of the Highland Chief. In addition there are a series of similar, but roughly east and west striking reefs running from the granite into the greenstones in the above-mentioned lease. None of these appear to carry values, but very good prospects have been obtained from a creamy, somewhat sandy reef in the granitic rock in this lease, close to the contact with the greenstone. This reef strikes nearly north-west and south-east—roughly parallel to the contact—and dips south-west—away from the contact—at about 45 degrees. A fair amount of work has been done on this reef, which, at the time of my survey, looked fairly promising. A fair amount of bismuth carbonate was present in some of the richer stone.

(4.) Detrital Deposits.—Practically no work of an alluvial character has been done in this area, which does not lend itself to the formation of payable alluvial deposits. Practically all the ore-bodies of the Porcupine group occur on the northern slope of the main dolerite ridge, and any gold leached therefrom by surface waters, or removed by æolian agencies would be carried towards the valley to the north. Here the alluvial deposits are spread over a comparatively wide area, before the main creek, which runs some 20 chains distant from the ore-bodies, is reached, and it is therefore unlikely that any well-defined and payable alluvial lead will be found in the locality.

JASPER HILL, MURCHISON GOLDFIELD.

(F. R. Feldtmann.)

The survey of Jasper Hill, formerly known as The Pinnacles, occupied the months of June and July, 1916. Some eight square miles of country were mapped in detail, and, in addition, Hill End and Webb's Patch were briefly examined.

General Remarks.

Jasper Hill lies about 12 miles south-east of Cue, as the crow flies, and about 8 miles east-north-east of The Mainland.

The mining area, covering a little under two square miles, consists of a low range of greenstone hills about two and a-quarter miles in length, striking about N.N.E.-S.S.W., and flanked on its north-western side by a relatively narrow area of granite outcrops, the whole being surrounded by alluvial flats. The rock debris only extends for a short distance from the foot of the range.

The Pinnacle itself is a small, roughly conical hill of jaspery quartz at the northern end of the range.

The town is situated on the south-eastern side of the leases.

The Rocks.

(1.) Dolerite and its Derivatives.—For the purposes of this report, the greenstone rocks of Jasper Hill may be broadly classified as follows:—

(a) Massive dolerite, amphibolised in places.
(b) Hornblende schists.

(a) The *massive dolerite* is a medium-grained, dark-greenish rock, usually occurring as elongated lenses of greatly varying dimensions in the hornblende schists. No sections of either rock having as yet been examined, microscopical evidence on the question of their relationship is lacking, but on the field evidence I am inclined to regard the areas of massive dolerite as those portions of a large mass which have escaped the effects of the shearing, which, assisted, probably, to a minor degree by contact metamorphism, has given rise to the hornblende schists. As those areas in which schistosity has been developed to the greatest degree represent the main lines of weakness subsequently affected by the gold-bearing solutions, these areas of massive dolerite may be disregarded in prospecting.

(b) *Hornblende schists.*—These rocks occupy by far the greater portion of the greenstone area, and form the country rock of the ore bodies.

Typical specimens show a comparatively fine-grained, tough, dark-greenish rock, distinctly schistose, both in the field and in the hand specimen. Flakes of a comparatively pale micaceous mineral, probably biotite, are common, and in some instances in the immediate vicinity of the ore bodies are so numerous as to form a biotite schist, probably largely due to the effects of contact metamorphism, for pegmatite dykes are common in the vicinity.

(2.) Granite.—A large area to the north and west of the greenstone ridge is evidently occupied by granite, but it is largely obscured by superficial deposits.

In typical specimens the rock appears a relatively coarse-grained pale greyish mass in which large crystals of felspar are common; the ferro-magnesian mineral occurs as flakes too small for accurate determination by the naked eye, but is probably biotite. A well-marked gneissic structure is present in some instances. The granite is undoubtedly intrusive into the greenstone rocks, for numerous pegmatitic dykes are found running from it into the hornblende schists, usually in a direction parallel to the planes of schistosity in the latter.

(3.) Pegmatite Dykes.—The term "pegmatite" is here used in a broad sense, as the dykes vary somewhat in general appearance, some of the larger ones being hardly distinguishable in the hand specimen from the granite itself. Some, however, of the smaller dykes are finer in grain, and in others there is a development of coarse flakes of a pale mica; garnet crystals are occasionally observable and bunches of black tourmaline needles were seen in one small dyke.

The dykes are commonest in the hornblende schist near the margin of the granite, being seldom found more than 30 chains away from it. They vary from a mere thread up to about 40 feet in width, but are usually from two to four feet. A certain amount of contact metamorphism was observable in some instances in their vicinity. It is unlikely that they have have had any influence on the ore bodies, the formation of which they, in all probability, preceded.

(4.) Superficial Deposits.—Flats covered by a superficial deposit of soil, probably partly of alluvial, partly of eluvial origin, extend to the south-east of the main greenstone ridge for a width of about 2½ miles, when the Hill End-Webb's Patch line of greenstone country is encountered. North-west of the granite outcrops on the western side of the ridge similar flats extend for a still greater distance. To the north, the alluvial country is broken by occasional granite outcrops, while to the south the flats probably run into Lake Austin. Coarse rock debris, so characteristic of the country round Quinn's, is, as a rule, conspicuously absent, as are, also, lateritic deposits.

The Jaspers and Ore Deposits.

(1.) The Jaspers and Lode Formations.—On account of their intimate association within this area, it is convenient to describe the jaspers and lode formations together.

They occur, usually, as long lines of compound and markedly schistose bodies averaging about 20 feet in width, in which there are numerous lenses of jasperoid matter. Only in a few instances do the latter show well-marked outcrops rising above the surrounding rocks, as is usually the case in other mining centres in the Murchison Goldfield; such occur at the Pinnacle itself, and at a point a mile to the south-west along the same line.

Within this area there are two main lines of weakness occupied by these compound jasperoid bodies, namely the Pinnacles line and the Comet line. The latter, which can be traced over a length of 2¼ miles, strikes about N.N.E.-S.S.W.; the former, about two miles in length, strikes about north-east and south-west. Towards the southern end of the area they are rather more than 30 chains apart, but they converge going north, and on their present course should meet under the alluvial ground close to the eastern corner of the Halle, G.M.L. 527D.

Smaller lines are that running through the Venus, G.M.L. 531D, and one about 10 chains west of and parallel to the northern portion of the Pinnacle line.

Besides the lenses of jasperoid matter, these bodies are composed largely of laminæ of hornblende schist with, in the oxidised zone, a good deal of yellow, brown, and flame-coloured opaline matter, a little kaolin and stringers of resinous quartz; a greenish mineral, probably chloropal, is also present. Below the oxidised zone there is a good deal of fine pyrites.

Values occur in shoots, but these, with the exception of that in the Comet, G.M.L. 513D, appear to be short and, as a whole, these formations must be regarded as distinctly low-grade propositions. The gold appears to be in a fine state of division, and prospects in the dish seldom give any idea as to the value of a sample, while sliming and cyanidation seem to be necessary to obtain a good extraction from the ore.

A schistose formation in which jaspery lenses are absent runs through the Shamrock, G.M.L. 540D. In this formation there is a small development of talcose schist with some red opaline matter, and a little resinous quartz as well as laminæ of hornblende schist. It is of no great length, probably not exceeding 25 chains, but some specimen stone is said to have been obtained therefrom.

(2.) Quartz Reefs.—Except at the junction of the granite and the greenstones, usually marked by a series of well-defined and occasionally somewhat laminated icy quartz reefs up to about 60 feet in width, quartz reefs are not common in this centre. A few short lenses are found in the hornblende schist, usually of a bucky nature and carrying no values. A small reef of white, somewhat glassy, granular quartz up to 18 inches in width, six chains west of the north-west boundary of the Comet South, G.M.L. 517D, was being worked at the time of my survey; a little coarse gold was occasionally visible in this reef.

(3.) Detrital Deposits.—But little work has been done in this centre on deposits of an alluvial character. In the vicinity of the ore-bodies the few water-courses are generally steep and narrow, and contain but little detrital matter. A small alluvial patch, from which some 300 ounces of gold are said to have been obtained, runs diagonally across the Shamrock lease below the previously mentioned lode formation from which it was evidently derived.

QUINN'S, MURCHISON GOLDFIELD.

(F. R. Feldtmann.)

The examination of Quinn's, including a brief visit to Mt. Yagahong, occupied the months of April and May, 1916. About 12 square miles of country were mapped.

General Remarks.

The mining centre of Quinn's is situated, as the crow flies, about 22½ miles south-east of Nannine and 35 miles slightly north of east from Tuckanarra. The township of Quinn's is situated on the south-eastern side of a series of small ridges, which at its south-western end is mainly composed of a number of jasper bars, and at its north-eastern end of rock of a gneissic character, terminating to the north-east at Nowthanna Trig.—the highest hill in the vicinity—situated on the western edge of Quinn's Lake, about 1½ miles north of east from the town. The mining area, roughly about four square miles in extent, lies mainly to the west of the town. South of the town is a debris-strewn alluvial flat running into Quinn's Lake about a mile to the south-east. To the west of the series of ridges, the ground slopes rapidly to alluvial flats, strewn with debris and with but few rock outcrops.

The Rocks.

(1.) Amphibolite.—The greater portion of the area mapped is apparently occupied by amphibolite or epidiorite, but it is largely obscured by superficial deposits and, except at the extreme north-eastern portion of the area, unweathered outcrops are not common. In the hand specimen these are fairly coarse-grained, speckled, dark greenish rocks, apparently composed of hornblende and altered (zoisitised) felspar; their derivation from a gabbro or coarse dolerite is obvious. A schistose structure is frequently observable, both in the field and in the hand specimen.

(2.) Granodiorite.—Forming the country rock of the main auriferous reefs is an elongated, roughly lenticular area of a highly sheared rock, striking roughly W.S.W.-E.N.E., and about three miles in length by one and a-quarter miles in width. This rock, which forms a succession of rough ridges, terminating in the Nowthanna Trig. hill, already mentioned, is too much weathered at the surface for determination by the hand specimen alone. In the few instances where the less weathered rock is exposed on the dumps of old shafts, such specimens as have been examined show a highly sheared, coarse-grained greyish or reddish rock of granodiorite character; individual specimens, however, vary considerably. For the purposes of this report, the rock is temporarily classified as a highly sheared gneissic granodiorite. In the immediate vicinity of the auriferous reefs, the rock is usually highly micaceous.

The south-eastern boundary of the granodiorite is obscured by Quinn's Lake, but on the north, west and south, in part, it is bounded by the amphibolite into which it appears to be intrusive.

A smaller area of the same rock, about a mile and a-quarter in length by 14 chains in width, is found in the south-western portion of the area mapped,

about half a mile to the north-west of the road from Quinn's to the Nowthanna group of leases. The Wallaby group of leases is situated about the middle of the mass. The rock here is much weathered, but appears to be finer in grain than that of the main mass.

(3.) PEGMATITE DYKES.—But few minor dykes are found in this area, and these are of a pegmatitic character. A small series of dykes of this nature is found intruding the amphibolite about three-quarters of a mile north of east from the Wallaby leases. All are coarse in grain, and the majority appear to consist of quartz, felspar, and a pale mica; in a few, however, mica is apparently absent, and the rock is composed of coarse masses of pink felspar and translucent quartz. These rocks do not appear to bear any relationship to the ore bodies, though both may be connected with the magma which gave rise to the granodiorite.

(4.) SUPERFICIAL DEPOSITS. — Including Quinn's Lake and the laterite, which is found capping a well defined series of breakaways in the north-western portion of the area, as well as associated with jasper bars on a number of small hills near the junction of the amphibolite and granodiorite, about two-thirds of the area mapped is covered by superficial deposits. These are chiefly represented by the reddish soil characteristic of gold-mining centres. A feature of the district, however, is the number and extent of coarse fragments of quartz and jasper which are found a considerable distance from their source.

THE JASPERS AND ORE DEPOSITS.

(1.) THE JASPERS.—Well defined and long lines of jasper are a marked feature of this area. They usually occur entirely in the amphibolite and follow the general strike of the country, *i.e.*, about E.N.E.-W.S.W., notable exceptions being certain bars, usually compound, which follow the contact between the amphibolite and the granodiorite. In the majority of cases the jaspers are highly ferruginous, coarse magnetite crystals being occasionally noticeable on the faces of some of the laminæ, and in all probability they pass into dense sulphide bodies at depth, the presence of coarse "devil's dice" on the slope of a small ridge, north of the Phœnix lease, occupied by one of these bars, confirming this. In composition, the jaspers occurring at the contact of the previously mentioned rocks are again an exception to the general rule, being highly silicious, their composition having been evidently affected by that of the more acid granodiorite.

(2.) THE REEFS.—The most consistent ore bodies in this centre are a series of laminated quartz reefs in the western portion of the granodiorite, with strikes varying from north-east and south-west to east and west, but usually E.N.E.-W.S.W. These reefs are of considerable length, one, the Three Stars, being probably over a mile. The main lines of reef are the Two Jacks, the Parramatta, the Three Stars, and the Singapore; the two former cross each other at the western ends. All are composed of highly laminated and jointed white or greyish quartz, varying in width from a few inches up to about five feet. They dip to the S.S.E. at steep but varying angles. Values are variable and occur in shoots, but the reefs themselves are well defined, and should live to a considerable depth.

Less laminated than the previously mentioned reefs are the Favorite and Wallaby lines. The former, which is near the southern edge of the main body of the granodiorite, strikes east and west and dips to the south; the latter, which occurs in the smaller granodiorite area to the south-west, strikes about N.N.W.-S.S.E. Both are composed of milky white quartz, somewhat vughy in the case of the Wallaby reef.

The Singapore and Favorite reefs were the only ones being worked at the time of my survey.

Numerous quartz reefs are found in the amphibolite, but they are usually "bucky," with, in some instances, a tendency towards an asteriated structure, and appear to carry no values except at their junctions with the jaspers; these junctions are always worth prospecting, as several rich patches, for example, in the Kaladbro and Nowthanna leases, have been obtained in this district from such points.

(3.) DETRITAL DEPOSITS.—A good deal of gold has been obtained by dryblowing in this centre, and the surface of the mining area has been gone over so thoroughly that the possibilities of obtaining much gold by this method in future are not very good. On the other hand, comparatively little work has been done in search of true alluvial leads, and it is possible that such may occur in the vicinity of the main water channels, such as those running through Water Reserves 3135 and 13435.

CHEMICAL AND MINERALOGICAL WORK.

(E. S. SIMPSON.)

Routine Work.—The main features of this are indicated by the accompanying table showing as closely as possible the number of samples received at the Laboratory and assays and determinations made of them. Although the total number of samples was somewhat lower than in the previous year, this routine work was found to occupy practically the whole of the time of the staff, which, owing to changes in personnel, was not at full strength throughout the year. Whilst much of this routine work is necessary and inevitable, it is not the most valuable work that can be done by the laboratory staff for the State, since the results of most of it are made available to only one or two persons, and it does not in any case form part of any scientifically directed scheme for the development of our latent mineral resources. For research work of this latter kind there is abundant scope in the State, where so many thousands of pounds worth of manufactured goods are imported, the raw materials for which are abundant within our own boundaries. The preliminary steps taken to found a Commonwealth Institute of Science and Industry are a tardy recognition of the fact that the whole foundation of modern industry is the scientific research of biologist and chemist, geologist, physicist and engineer, without which we should have advanced but little from the prehistoric condition of individual barter. One Commonwealth institute cannot, however, cope with all the scientific problems associated with the development of such a vast and young territory, and further, its tendency will inevitably be towards centralisation of problems investigated and of benefits conferred. Vigorous local efforts will still be necessary in each State, and nowhere more than in Western

Australia, to direct scientific inquiry towards building up local industries on the basis of local raw materials, which, so far as the mineral kingdom is concerned, are here most abundant and varied, but still in need of detailed scientific investigation on systematic lines.

Staff.—The position of Chief Assistant, rendered vacant by the death of Mr. A. J. Robertson, has been filled by the permanent appointment of Mr. H. Bowley, whose long service on the Laboratory staff fits him eminently for this position.

Special Investigations.—War conditions have been reflected in the work of the Laboratory in an increased demand for information regarding ores of tungsten, molybdenum and antimony, all three in unusual demand for munition purposes. Tungsten, in the form of wolfram and scheelite, is found in numbers of localities in the State, usually in small and irregular deposits associated with gold ores. In several of these localities the minerals could readily be saved by concentrating tables, but up to the present they appear in most instances to have been wasted in the tailings without second thought. Molybdenite, the only commercial ore of molybdenum, is also widespread in small quantities, but at only one locality, viz., Mulgine, near Warriedar (South Yalgoo Goldfield), is any attempt being made to open up a deposit of the mineral. In this locality it occurs in a microcline pegmatite and in an associated fracture zone of the granite. Assays of the crude ore have ranged from 1½ to 24 per cent. of molybdenum sulphide, worth, after concentration to a minimum of 90 per cent., £4 14s. per unit at Fremantle.

Local interest in graphite deposits has been stimulated by the presence in the State of a representative of one of the biggest consumers in England. In view of the approaching exhaustion of the unrivalled Ceylon deposits and the difficulty in obtaining adequate supplies from Madagascar and Siberia, the only other important producers of the mineral, there is every hope of Western Australian deposits being successfully developed. The value of a graphite deposit appears to depend mainly on the quantity, size, and purity of the flake graphite obtainable from it. At Kendenup (South-West Division), Monglinup Creek, near the Oldfield River (South-West Division), and Northampton (Murchison Division), deposits are known which give promise of yielding fair quantities of marketable mineral, and from Kendenup already several small parcels have been exported. As an example of the best material available at Kendenup one may quote the results of an examination of a picked ore from the Kendenup Mine collected by Mr. Blatchford, an officer of this Department.

Ore.	per cent.
Total graphite	80.54
Ash	17.48
Crude flake over 30 mesh ..	6.1
„ „ „ 40 „	15.2
„ „ „ 80 „	38.3
Total flake	59.6

Ash in washed flake.	per cent.
Flake over 30 mesh	5.98
„ „ 40 „	7.09
„ „ 80 „	3.11

The deposit on the Donnelly River, near Manjimup, of which so much has been heard from time to time, has yielded, down to the depth to which it has been opened up, only traces of flake graphite of the usual commercial grade. The great bulk of the graphite in the exposed portions of this deposit is "amorphous," *i.e.*, in microscopic granules or scales, forming from 20 to 30 per cent. of a soft clay.

A demand has arisen in Australia and elsewhere for "asbestos" for the preparation of fibro-cement sheets for building purposes. "Asbestos" is a name applied not to a single mineral, but to any one of a number of finely fibrous silicates, the most valuable of which is chrysotile (fibrous serpentine). The term also includes fibrous varieties of anthophyllite tremolite, actinolite and talc, all of which are known in the State. Chrysotile is found in considerable quantities only in a most inaccessible locality, Soanesville, in the Pilbara Goldfield, but fibrous actinolite is of common occurrence in several localities, and it is hoped that this may be found suitable in quality for such work. The differences in the composition of these minerals is shown by the following local examples:—

	Chrysotile Soanesville, N.W. Div.	Fibrous Actinolite, Hannan's Lake, Cen. Div.	Fibrous Actinolite, Mt. Magnet. Mur. Div.	Fibrous Anthophyllite, Torrindon, S.W. Div.
Silica	42·98	54·62	60·36	58·07
Alumina	·44	·92	·62	3·39
Ferric Oxide	1·68	2·64	1·42	·69
Ferrous Oxide	·24	6·03	6·00	10·46
Manganese Oxide	trace	·48	str. trace	str. trace
Magnesia	39·92	21·20	19·08	25·30
Lime	*Nil*	12·50	10·60	·33
Water at 100°	1·94	·32	·10	2·58
Water above 100°	12·88	1·86	2·06	
	100·08	100·57	100·24	100·82

Clays, with which the State is so abundantly endowed by nature, are slowly coming into demand, and inquiries have been made during the year for some of suitable quality for making zinc retorts. The investigation of the clays of the South-West Division has been continued as opportunity occurred —which is but seldom, owing to lack of staff—and is now being directed towards the discovery of single clays or mixture of clays suitable for zinc retorts, roofing tiles, sanitary ware, and domestic china.

MINERAL NOTES.

Following are some notes on new mineral records established during the year:—

Molybdite, (Hydrated Molybdate of iron), Mulgine, near Warriedar, Yalgoo G.F.—This is the locality at which the occurrence of molybdenite was described in my last Annual Report.* Mr. F. R. Feldtmann has obtained some small but excellent examples of molybdite of typical lemon yellow colour and fibrous structure. A full description of this mineral is being prepared, as most text books give erroneous descriptions based not upon the natural mineral, but upon artificial molybdic oxide with which it was till recently assumed to be identical. Molybdite is unstable under weathering conditions and is therefore of rare occurrence, and is not used as a source of metallic molybdenum.

Molybdenite, Westonia, Yilgarn G.F. (Sulphide of molybdenum).—Mr. Blatchford has collected some fine specimens, with flakes up to one inch (2½cm.) in diameter in white quartz at 260 feet depth in the Edna May main lode in the Edna May Central G.M. Small scales of the same mineral were found also on the foliation planes of a granitic biotite gneiss at 250 feet in the Edna May Deeps G.M.

Molybdenite, Leonora, Mt. Margaret G.F. (Sulphide of molybdenum).—Mr. C. S. Honman has collected specimens of a quartz-felspar pegmatite from Thomas's show, 10 miles north-west of Leonora, showing a fair amount of molybdenite in flakes and rosettes up to ¾ inch (2cm.) in diameter.

Tapiolite, Tabba Tabba Creek, Pilbara G.F. (Tantalate of iron).—This very rare tantalum ore, which differs from tantalite (ferro-tantalite) chiefly in crystalline form, occurs somewhat freely with cassiterite in the alluvium of Tabba Tabba Creek, close to the railway crossing. An analysis showed that it had the following composition:—

Tantalic oxide	82.55	per cent.
Niobic oxide	1.37	„
Titanium oxide	.18	„
Tin oxide	.34	„
Ferric oxide	.83	„
Ferrous oxide	10.69	„
Manganese oxide	1.47	„
Lime	1.96	„
Magnesia	.10	„
Water	.31	„
	99.82	

It was distinctly crystallised in twins of the tetragonal system, so that the mineral might be mistaken for cassiterite (tin oxide). A complete scientific description has been submitted to the Mineralogical Society, London. Tapiolite is of the same value as tantalite as a source of the metal tantalum.

Gadolinite, Cooglegong, Pilbara G.F. (Silicate of iron, beryllium, and the yttrium metals).—Further specimens of this mineral having been forwarded for examination with a view to determining its commercial value, advantage was taken of the opportunity of checking the only analysis previously available, viz., that by Davis† in 1902, which indicated that the Cooglegong mineral was exceptionally poor in yttrium earths, and therefore of diminished commercial value. The figures now obtained, however, show that on the contrary the gadolinite from this locality is quite normal in composition, the results of the rare earths being:—

	Ytterby, Sweden, Petersson.	Cooglegong, Simpson.	Cooglegong, Davis.
Beryllium oxide	10.17	10.09	10.38
Yttrium earths	45.96	45.78	33.40
Cerium oxide	1.65	1.31	2.50
Lanthanum and didymium oxides	3.06	3.50	18.30

Monazite, Cooglegong, Pilbara G.F. (Phosphate of cerium metals and thorium).—A new find of this mineral has been made in this locality. The previous samples obtained many years ago and described in Bulletin 48, were in cinnamon brown pebbles up to 10 grammes in weight, but averaging only a little over ½ gramme. They carried from 3.46 to 4.38 per cent. of thorium oxide. The new sample is in much larger fragments, up to 50 grammes in weight and almost black in colour, from a thin coating of manganese ore (psilomelane). Assays for thorium will be made when a bulk sample is available. The minimum grade for commercial monazite is about 3.5 per cent. thoria.

Electrum, Yundamindera, North Coolgardie G.F. (Alloy of gold and silver in equal molecular proportions).—This mineral was collected by Mr. C. S. Honman at the Queen of the May Mine, where it was fairly abundant in a quartz reef. When freshly broken out it is silver-white in colour, but rapidly tarnishes in a sulphury atmosphere to a golden yellow. It is in fragments up to one-sixteenth inch (1½mm.) in diameter. Its composition is—

Gold, 64.44 per cent. Silver, 35.56 per cent.

Typical electrum contains theoretically—

Gold, 64.63 per cent. Silver, 35.37 per cent.

Corundum, Melville, Yalgoo G.F. (Oxide of aluminium).—A single detrital crystal of this mineral was received from Melville some few years ago, but no information was available regarding its occurrence. Recently a microcline pegmatite, carrying numerous large crystals of magnetite, was received for determination, and this was found to contain many microscopic crystals of corundum, mostly smoke brown in colour, but partly deep blue green. In view of this it is possible that systematic search would reveal a commercial deposit of the mineral or even stones of gem quality.

Scheelite, Comet Vale, North Coolgardie G.F. (Tungstate of calcium).—In the Payley G.M. scheelite has been found in yellowish white to honey yellow masses in white and ironstained auriferous quartz.

Scheelite, Norseman, Dundas G.F. (Tungstate of calcium).—Specimens have been received from the Hill End G.M. showing large masses of white and pale yellow scheelite associated with quartz.

Apatite, Mt. Francisco, Pilbara G.F. (Fluophosphate of calcium).—A pegmatite from this locality contained a considerable percentage of white granular apatite associated with albite, grossularite, and epidote.

Analcite, Comet Vale, North Coolgardie G.F. (Hydrated silicate of sodium and aluminium).—This mineral has been found forming a perfectly crystallised crust on the walls of a vugh in the Sand Queen G.M. It has not previously been recorded as occurring in the State.

* Annual Progress Report, G.S.W.A., 1915, p. 37. † Proc. Roy. Soc. of N.S.W., 36, 286.

Meteorite, Mt. Magnet, Murchison G.F.—Through the kind services of H. G. Stokes, Esq., of Comet Vale, the Department has obtained possession of the whole of a meteorite recently discovered at Mt. Magnet. This is a sickle-shaped siderite in two fragments, which fit together perfectly. The total weight is 36½lbs. (16½ kilos). The meteorite belongs to the group of finest octahedrites with high nickel content (over 13 per cent.). It is the twelfth metallic meteorite to be found in the State.

Publications.

In these the results of investigations which are of scientific or economic importance are placed on permanent record for the benefit of those interested.

The Annual Progress Report for 1915 contained, in addition to the usual miscellaneous mineral notes, reports on the Commercial Application of the Foraminiferal Dune Sands of Dongarra and Geraldton.

Volume 1 of the Journal of the Royal Society of Western Australia contained a paper entitled "Natrojarosite from Kundip," by myself and Mr. M. A. Browne, B.A. This described a natural sulphate of iron and sodium occurring in certain gold ores at the Phillips River and liable to affect the extraction of metal by either smelting or leaching processes.

Copies of Bulletin 67 "Analyses of Western Australian Rocks, Meteorites, and Natural Waters" are to hand. This bulletin gives in a form accessible to scientific investigators and others interested in the composition of our local rocks and underground waters the results of some hundreds of analyses made since the inception of the Geological Survey Laboratory in 1897.

For Bulletin 68, dealing with the Geology of Meekatharra, two chapters were written and are now in the Press. They are entitled respectively "The Minerals of the Meekatharra District," "The Underground Waters of the Meekatharra Area."

The Report on the Chemical and Physical Properties of the Donnybrook Sandstones, written for the Chief Architect in 1915 in connection with the search for suitable building material for the new G.P.O., has been revised and prepared for publication. It now includes information regarding the stone from the new Government Quarry which is being used in the upper portions of the G.P.O.

A revised edition of Bulletin 19, "Minerals of Economic Value," is now in the Press and should form a useful handbook for the information of the prospector or unscientific mine worker.

For some unexplained reason, although the Government of Western Australia subscribes to the International Scientific Catalogue and a local bureau has been established, practically no records of local publications have ever appeared in the Annual Catalogue. This matter was taken in hand during 1916 by the Royal Society and a complete Catalogue for Section G (Mineralogy), covering the years 1914/5, was prepared by myself and duly forwarded to London for inclusion in the next issue. It is hoped from now onwards to keep this widely distributed record up to date so far as this State is concerned.

LABORATORY REPORT FOR 1916.

——	Public — Pay.	Public— Free.	Geological Survey.	Other Departments.	Totals.
Samples	83	247	164	902	1,396
Gold assays	43	99	11	855	1,008
Silver assays	1	26	2	68	97
Copper assays	3	29	2	41	75
Tin assays	2	5	..	6	13
Lead assays	1	11	1	13	26
Bismuth assays	..	3	..	12	15
Antimony assays	..	..	1	6	7
Iron assays	..	3	4	..	7
Manganese assays	..	4	..	..	4
Tungsten assays	..	3	1	9	13
Lime assays	..	2	1	..	3
Magnesia assay	..	..	1	..	1
Phosphoric oxide assays	..	5	2	..	7
Tantalum assays	..	3	..	..	3
Molybdenum assays	..	6	1	2	9
Beryllium assay	..	1	..	..	1
Yttrium assay	..	1	..	..	1
Silica assays	..	2	29	3	34
Sulphur assays	..	2	2	2	6
Petroleum assays	..	2	..	..	2
Tellurium assays	..	1	3	..	4
Proximate analyses	26	22	23	..	71
Partial analyses	..	2	8	11	21
Complete analyses	1	..	20	3	24
Determinations	5	120	44	7	176
Clay Tests	6	6	2	3	17
Flake Tests (Graphite)	16	11	11	..	38
Metallurgical Tests	..	..	1	6	7
Miscellaneous	7	7	23	2	39
Ash Determinations	..	..	5	..	5
Totals	111	376	198	1,049	1,734

PETROLOGICAL WORK.

(R. A. FARQUHARSON.)

The petrological work carried out during the year 1916 falls conveniently in the following divisions:—

I.—Determinations and Reports for the Geological Survey Staff.

II.—Determinations and Reports for other Departments.

III.—Determinations and Reports for Prospectors and for the mining and general public.

I.—DETERMINATIONS AND REPORTS FOR THE GEOLOGICAL SURVEY STAFF.—In addition to the suites of rocks that will be considered later, there have been a considerable number of identifications and short descriptions made of specimens forwarded by various officers of the staff, with the object of obtaining information that would facilitate the mapping or that would elucidate mining or geological problems. These include specimens from North Dandalup, which were investigated in regard to the occurrence of molybdenite, and of which the details will be found in connection with Mr. Woodward's Report on the occurrence; specimens from Mt. Jackson; specimens from Edna May, Westonia, examined with regard to the continuation or change of a dyke at successive levels; from Mr. Talbot's East Murchison survey; and from Ninghan for the Government Geologist.

Proofs of various reports have been corrected for publication in Bulletin form, and a number of microphotographs, illustrating the more interesting rock types, have also been prepared. As in 1915, the year has been a particularly busy one, more than 800 sections having been cut and examined. So great, indeed, has been the pressure of work at times, that to obviate delays I have myself been obliged to cut two hundred sections, and the whole of the petrology of Westonia and the surrounding districts has been investigated by means of sections I have myself prepared.

The practice which has been adopted of having discussions with the Field Geologists based on the results of the petrological examination in regard to the relationships, etc., of the rocks has proved of much benefit to all concerned and has considerably facilitated the work in several fields, particularly at Meekatharra and at Westonia.

The collections of rocks examined include:—

A.—*Those from Meekatharra*:

The majority of these had been already investigated, but in the early part of 1916 various additional decomposed clayey specimens were examined, and during the course of the writing up of the petrological section of the Bulletin further sections were occasionally required to clear up various doubtful points. The fixing of relationships between the most altered rocks and of boundaries between the various types in accord with both the field and the microscopic evidence was finally settled, and the whole of the work for the Bulletin was finally completed and the proofs corrected. As the results have already been given at some length, there is no need to recapitulate them, especially as the Bulletin is on the eve of publication.

B.—*Those from Yilgangi*:

These, collected by Mr. Jutson, include the following types:—

(a.) A quartz-porphyrite.

(b.) Chloritic and partially carbonated agglomerates, with resemblances in places to an arkose.

(c.) Rocks with a volcanic agglomerate matrix composed of large, rounded and angular crystals and crystal fragments of quartz, felspar, and hornblende, and small pieces of andesitic and porphyritic rocks, and enclosing much larger rounded or angular pebbles of porphyry and porphyrite or andesite.

C.—*Those from the Butterfly Leases, Tampa, North Coolgardie Goldfield*:

The rocks from this locality consist chiefly of:—

(a.) Felsitic quartz porphyry.

(b.) A sub-ophitic diorite, with affinities to the amphibolised dolerites.

(c.) Quartz-diorites.

D.—*Those from Kookynie and Niagara District, collected by Mr. Jutson*:

The registration, sectioning, determination, and description of these rocks have been responsible for a considerable amount of the year's work. Altogether, fully 250 rocks have been dealt with, and some of these being virtually clays have required special treatment with balsam. Many interesting types have been discovered, the chief of which are:—

(1.) Fine-grained amphibolites, some with pale yellow zoisitic spots, very similar to those in the fine-grained zoisitic amphibolites at Kalgoorlie.

(2.) Pyroxenites, composed wholly of a monoclinic and an orthorhombic pyroxene.

(3.) Hypersthene gabbros, probably variations of (2) with additional felspar.

(4.) Quartz porphyries, some with rhyolitic affinities.

(5.) Probable acid agglomerates, more or less closely associated with (4).

(6.) Quartz-diorites.

(7.) Epidiorites, similar to those at Kalgoorlie and at Meekatharra.

(8.) Granites of various kinds, including gneissic granite, and the biotite-microcline granite in which the Cosmopolitan Mine was worked.

(9.) Quartz-mica schists.

(10.) Amongst the clayey rocks, some undoubted altered schistose greenstones, some kaolinised granites, and some foliated red and white kaolinised rocks resembling sediments at first sight.

Besides the determinations and descriptions, a considerable amount of correlation has had to be made, in conjunction with Mr. Jutson, and this, owing to the altered character of many of the rocks, has been attended with much difficulty.

E.—*Rocks collected by Mr. Honman from the Yerilla District*:

These call for no particular mention, with the exception of a fresh porphyritic basaltic dolerite of camphoritic appearance.

F.—*Rocks collected by Messrs. Clarke and Talbot from the Warburton Range and its vicinity*:

The examination of these was begun late in December, and has not so far been completed, but some interesting types have already been identified. These include:—

1. A series of quartz and felspar porphyries, some with large pink felspar phenocrysts, showing all gradations from a coarse-grained granitic porphyry to fine granular, almost aphanitic varieties.
2. Some black or nearly black coarse-grained gabbros, characterised by the presence in some cases of enstatite-augite, hypersthene and olivine, and all with a preponderance of basic labradorite or bytownite.
   These are undoubtedly identical with gabbros or coarse dolerites previously described by Dr. J. A. Thomson, from the Cavenagh Ranges further east.
3. Undoubtedly coarse-grained crushed gneissose granite, *e.g.*, from Mt. Gosse.
4. Doleritic dykes of fine grain traversing the gneissose granite and the gabbros. One of these is identical with the dolerite dykes at Sandstone, Cue, and Meekatharra.
5. Some volcanic conglomerates with resemblances to the agglomerate to the East of Meekatharra, and a greenish graywacke, with included fragments of igneous rocks.
6. A series of reddish dolerites from Table Hill. Some of these are distinctly phenocrystal with augite in two generations, and some show numerous round white vesicles of quartz.
7. Foliated garnetiferous gneiss.
8. Epidiorite and chloritic schist. These rocks appear to be the only greenstones similar to those associated with the gold deposits in surveyed parts of the State.

A full account of the specimens will be given in the Bulletin dealing with the Expedition, now in course of preparation.

G.—*Those collected by Mr. Blatchford from the Yilgarn Goldfield*:

A certain number of these rocks, sufficient for the purposes of the Field Geologist at that time, were dealt with last year, but on completion of the field work, the whole of the rocks, including the above as well as those obtained by Mr. C. G. Gibson, have required examination for the elucidation of the geological constitution and structure of the district, especially of the Westonia Field. Fully 200 sections have been prepared and examined during last year, in addition to those already in the register from 1915. The several localities dealt with, as well as the character of the rocks of which they are constituted, are as follows:—

1. The Greenstones from Golden Valley. These are all either hornblendites of coarse grain or fibrous epidiorites of rather fine grain.
2. The Greenstones from Hatter's Hill. These are fine-grained acicular hornblende-schist or massive, coarse grained crushed amphibolites or epidiorites.
3. Some graphitised and siliceous rocks of doubtful origin, but probably sedimentary.
4. The rocks from Bullfinch. Those collected by Mr. C. G. Gibson are all either fibrous epidiorites or hornblendites, and all have originally been derived from gabbros or pyroxenites.

   Those collected by Mr. Blatchford illustrate a section at the 410 feet level in the Bullfinch Mine, and consist of talc-chlorite-carbonate rocks, fine-grained fresh epidiorites and weathered chloritic schist. The relation between these facies is discussed in the Bulletin about to go to the Press.
5. The rocks from Westonia proper. These are:—

   (a) The Greenstone Dykes of the Edna May and Edna May Central Mines, which prove to be actinolitic prismatic hornblendites mostly, with no felspar or only a rare trace of it.

   (b) The Country Greenstone Rocks:—
   Evidence of these has been obtained not only from outcrops, from shafts and dumps and from the exposures in the mines, but also from bore cores, such as Duff's Bore Core, the core from Weston's Reward, etc. The rock facies present are:—

   Foliated hornblende gneiss.
   Granulitic hornblende schist.
   Acicular hornblende schist.
   Foliated amphibolite or diorite.
   Actinolitic chloritic hornblendite.
   Tremolitic serpentinous rock.

   The various facies are reducible to two broad divisions:—

   (a) The foliated hornblende-felspar rocks.

   (b) The non-felspathic hornblendic rocks.

   The relations between the groups and between the facies are discussed at length in the Bulletin.

   (c) The grey Biotite-Gneiss. This is described at length in the Bulletin, and evidence is adduced for regarding it as a derivative, by means of dynamic stress and heat, of a rock that is on the border line between a granite and a quartz-diorite, probably a granodiorite. It is shown, however, to be different both in chemical and mineralogical composition from either the yellowish Southern Cross granite or the granite from the Cosmopolitan Mine at Kookynie.

   (d) Quartz specimens and Granites.—The quartz specimens are of intrusive granitic or pegmatitic character, are frequently characterised by the presence of microcline crystals or contemporaneous microcline veins, and are commonly associated with wolfram, molybdenite, etc.

   The granites consist of the yellow biotite granite of the Southern Cross type, which occurs in the form of numerous apophyses in the greenstone. A very noteworthy feature of one specimen of the rock is the presence in it of small

particles of gold. The gold occurs partly in the felspar and partly, apparently, associated with the biotite. The occurrence in the felspar—which is fairly fresh—indicates that the gold is probably primary and is not the product of secondary deposition. A somewhat similar occurrence of primary gold is noted from New South Wales by Mr. Jaquet in a microcline rock.

(e.) The White Granite or Aplite Dykes.—These are microcline aplitic veins of varying thickness from inches up to about two feet, which traverse both the grey biotite-gneiss and the greenstones. They are all very fresh and occasionally garnetiferous.

II.—*Determinations and Reports for other Departments*:

Amongst these were some determinations of rocks for the Mines Department, and a report on some rocks collected by Mr. H. C. Castilla, of the Water Supply Department, from Hall's Creek, Kimberley. These latter rocks were examined in regard to prospecting for artesian or sub-artesian water. They proved to consist of:—

(a.) Sedimentary quartzites.
(b.) Basaltic dolerite.
(c.) A Biotite-quartz-hornblende dolerite.
(d.) An acid porphyry.
(e.) A granite.

The only rocks holding out any prospect of a water supply are the sedimentary quartzites.

III.—*Determinations and Reports for prospectors and the general public*:

In all, there have been 175 determinations of rocks and minerals made during the year under this heading. Of these, the following are worthy of special mention:—

(a.) Stibiconite and Stibnite from Whim Creek.
(b.) Bismuth, bismuth ochre, and bismutosphörite from Wodgina.
(c.) Euxenite from Cooglegong.
(d.) Sillimanite in a foliated biotite graphite garnet schist, from near Geraldton.
(e.) Blue Topaz from Wodgina.

In addition there have been:—

(i.) A Report on Mica from a commercial standpoint.
(ii.) A Report on the possibility of obtaining precious opal in association with common opal.
(iii.) Preparation of a list of localities and associations of Graphite in Western Australia.
(iv.) Reports on Asbestos for various prospectors. As a result, probably, of the Ministerial announcement, published in the *Kalgoorlie Miner* of October 28th, there was a marked increase in the number of samples of asbestos forwarded for examination. The majority of the material, however, was a hornblende asbestos of inferior quality. Up to quite recently, this was of practically no commercial value and, indeed, is still of no value, but if, as has been mooted, an Australian factory is established for the utilisation of inferior asbestos in the manufacture of bricks and roofing tiles by the recently invented process, there is reason to believe that there will be a market for quite a considerable amount of Western Australian asbestos.

(v.) A selection of minerals for exhibition from the collection kindly lent to the Geological Survey by Mr. F. A. Moss.

The collection includes some rare copper iodides (marshite, etc.), crystals of cerussite, azurite, mimetite, etc., from Broken Hill, and the thanks of the Geological Survey are due to Mr. Moss for placing it almost unreservedly at the disposal of the Department.

(vi.) A report on the gangue and the condition of the graphite from Kendenup. There proved to be a considerable amount of garnet in this material, and the scales were much more minute than they appeared to the naked eye.

Finally, during the year, an article was prepared for the Mining Handbook of Western Australia entitled "Petrology and its Economic Applications." The article is in two portions, of which the first contains an outline of the meaning and scope of the science and its practical application in:—

(a.) Geological surveying,
(b.) Mining geology and the study of ore-deposits,
(c.) Architecture and Engineering,
(d.) Agriculture,

and the second is a succinct account of the chief rock-making minerals and the commoner rocks, with the tests by which they may be distinguished in the field even by those whose knowledge of geology or mineralogy is only rudimentary.

GEOLOGICAL SURVEY MUSEUM AND COLLECTIONS.

As has been previously pointed out, the operations of the Department have been hampered and its utility seriously impaired through no proper provision having been made regarding museum accommodation, to which attention has frequently been made in previous reports.

The additions to the Survey Collection during the year amounted to 676, bringing the total number registered up to 15,595.

Special acknowledgment must be made of the donation to the collection of:—

$\frac{1}{502}$ Pseudomorphs after Pyrites—(H. G. Stokes);
$\frac{1}{718}$ Gold in Ironstone—(R. Daniel);
Corundum, with white Mica "Damurite"—(M. Lacombe);
$\frac{1}{829}$ Galena, from Monarch Mine, British Columbia, Am.—(F. A. Moss);
$\frac{1}{830}$, $\frac{1}{831}$, $\frac{1}{832}$ British Columbia—(F. A. Moss);
$\frac{1}{835}$ Crystallized Dolomite, from Robinson Crusoe, Menzies—(H. Stokes);
$\frac{1}{838}$ Quartz, with ferruginous Calcite, Dreadnought Mine, Menzies—(H. Stokes);
$\frac{1}{846}$ Limestone, 475 miles from Kalgoorlie, Trans. Railway Line—(J. Nicholson);
Obsidianite, 22 miles across South Australian Border, Trans. Railway Line—(J. Nicholson);
$\frac{1}{1161}$ Graphite, four miles north of Northampton—(H. P. Herbert);
$\frac{1}{720}$ Scheelite, $\frac{1}{721}$ Barite —(S. Yeo);
$\frac{1}{730}$ Collie Fossils—(Inspector of Mines);
$\frac{1}{731}$ Molybdenite in Felspars, North Dandalup, S.W. Division—(M. Fernie);
$\frac{1}{810}$ Manganese Ore, Ravensthorpe—(M. Hassell);

$\frac{1}{775}$ Fossil Sponge, Albany—(H. Bowley);
$\frac{1}{771}$ Tantalite
$\frac{1}{772}$ Tourmaline } Greenbushes—(G. Bonnar);
$\frac{1}{843}$ Chrysolite in Gangue, Shelford, Quebec, America—(M. Johnson);
$\frac{1}{844}$ Rutile, Templeton, Quebec, America—(M. Johnson);
$\frac{1}{845}$ Chrysolite in Serpentine, ; Coleraine, Block Lake, Quebec—(M. Johnson);
$\frac{1}{848}$ "Awaruite" (Louesite), near Lytton, Fraser River, B.C.—(M. Johnson);
$\frac{1}{849}$ "Awaruite," Hoole, Canyon, Pelly River, Yukon, Canada—(M. Johnson);
$\frac{1}{850}$ "Yukonite," Doulton Mine, near Conrad, Yukon Territory, Canada—(M. Johnson);
$\frac{1}{859}$ Fossilised Wood, Kojonup, S.W. Division—(M. Wood).

LIBRARY.

The Geological Survey Library received during 1916, 977 publications from other cognate Institutions throughout the world; in addition 143 volumes were added by purchase, and 201 volumes bound.

The distribution of the official publications of the Survey issued during the year amounted to 3,063 as against 6,407 of the previous year.

PUBLICATIONS.

The publications for the year have been as follows:—

Annual Progress Report for the year 1915.

Bulletin 66.—The Geology of the Country South of Kalgoorlie, including the Mining Centres of Golden Ridge and Feysville: by C. S. Honman.

Bulletin 67.—Analyses of Western Australian Rocks, Meteorites, and Natural Waters: by E. S. Simpson.

Bulletin 68.—The Geology and Ore Deposits of Meekatharra: by E. de C. Clarke.

Bulletin 69.—Contribution to the Study of the Geology and Ore Deposits of Kalgoorlie, Part III.—The North End of Kalgoorlie: by F. R. Feldtmann.

In addition to these, there are now in the hands of the Governmenet Printer:—

Bulletin 70.—The Western Australian Mining Handbook: by A. Gibb Maitland and Staff.

Bulletin 71.—The Geology and Mineral Resources of the Yilgarn Goldfield, Part III.—The Districts North of Southern Cross: by T. Blatchford and C. S. Honman.

Bulletin 72.—Palæontological Contributions to the Geology of Western Australia, Series VI., Nos. XI. and XII.: by F. Chapman and R. Etheridge.

Bulletin 73.—The Geology of the North Coolgardie Goldfield, Part I.—The Yerilla District: by C. S. Honman.

Bulletin 74.—Miscellaneous Reports, Series V., No. 61-68.

Bulletin 75.—A Geological Reconnaissance in the Country between Laverton and the South Australian Border, including part of the Mount Margaret Goldfield: by H. W. B. Talbot and E. de C. Clarke.

The following are in hand:—

The Artesian Water Resources of Western Australia: by A. Gibb Maitland.

The Geology and Mineral Resources of Western Australia, with a four-sheet geological map: by A. Gibb Maitland.

The Geology and Mineral Resources of the Yalgoo Goldfield: by A. Gibb Maitland and F. R. Feldtmann.

The South-West Division; its Geological Structure and Mineral Resources: by H. P. Woodward.

The Magnesite Deposits of Western Australia: by F. R. Feldtmann.

The Mining Geology of Niagara, Kookynie and Tampa, North Coolgardie Goldfield: by Jno. T. Jutson.

The Geology and Mineral Resources of the North-West Division, between Latitude 22° and 28° South: by H. W. B. Talbot.

A. Gibb Maitland

Government Geologist.

1st May, 1917.

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DIVISION V.

School of Mines of W.A.

School of Mines,
Kalgoorlie, 6th March, 1917.

Under Secretary for Mines.

I beg to forward, for the information of the Hon. the Minister, my report for the year 1916.

Consequent upon the resignation of Mr. A. C. Lloyd, B.E., B.Sc., the School has been without a permanent Lecturer in Mathematics during the whole year. For several months the classes were conducted by part-time instructors and were afterwards placed under the charge of two members of the permanent staff. The results have been sufficiently satisfactory, but for the proper conduct of this important section of the classwork a permanent lecturer is a necessity. Owing to the scarcity of fully qualified men the several efforts, including advertisements throughout the Commonwealth, to obtain a graduate as lecturer have proved unsuccessful, but for 1917 an officer has been secured who has had a sound University training in the subjects he will be required to teach. He has completed most of his degree course, and as he has had considerable teaching experience in Secondary Schools it is anticipated that the work will progress satisfactorily under his control. At the end of the year the Lecturer in Engineering resigned to take up a lucrative position in Victoria. Possessing wide outside experience Mr. Copland has conducted his department in a thoroughly efficient manner and the School will have difficulty in replacing him. To maintain the standard of instruction at the School of Mines as well as to comply with University requirements, fully qualified lecturers are essential, and the increasing difficulty of obtaining suitable officers makes it necessary to offer every possible inducement in order that the School may secure and retain competent lecturers upon its staff. Since this was written the newly appointed Lecturer in Mathematics has resigned and it has become necessary to make another appointment.

Towards the end of 1916 the Vice-Chancellor and several members of the Engineering Faculty of the University visited Kalgoorlie and discussed with the staff of the School of Mines various matters concerning the engineering courses. The two Goldfields representatives of the Senate and the State Mining Engineer also took part in the proceedings, a detailed report of which has already been forwarded. As a result of the recommendations of the University Committee, the Senate has adopted a report embodying amended regulations for recognition of classes at the School of Mines, but no action is to be taken as regards Mining and Metallurgy until the Faculty has received a report thereon from the Professor in Engineering, who is now absent on leave.

The Hon. the Minister has expressed his approval of the report adopted by the Senate. On the completion of the proposed arrangements recognition will be given to advanced instruction in the Engineering classes, and it will be possible for matriculated students to study at the School of Mines several subjects of their University course. Although the subject matter for these students may be to some extent similar to that of existing classwork for mining school students, it will require different treatment, and probably additional classes conducted in accordance with University requirements will be necessary. The School is anxious to assist matriculated students, but it must be borne in mind that at no institution can students who are proceeding to a degree course receive a training equal to that obtainable at the University.

The students of the School consist (1) of those who have recently left the State Schools and Continuation Classes, and (2) of youths and older men already in employment, many of whom have had no secondary education. The School does not teach languages or prepare pupils for matriculation, but it conducts preparatory science classes which afford an excellent introduction to the more advanced courses in Mining, Metallurgy, and Engineering.

The bulk of the classwork is conducted in the evenings. Many of the students when they first join have no intention of undertaking an extended course of study or of proceeding to the University, and if, after a year or two, they develop a desire in this latter direction, they are confronted with the difficulties of matriculation. The majority of the students, and especially the older ones, attend classes with the object of improving their knowledge along particular lines and of acquiring information having a direct bearing upon the work in which they are engaged.

The instruction embraces (1) practical work in the laboratories, and (2) theory in lectures, treated in such a way as to be of the greatest practical value to those engaged in the mining industry. The equipment is suited to this purpose, the syllabuses have been drawn up with this end in view, and the classwork has been specially adapted to the capabilities of the students in attendance.

Under the direction of the Mines Department, the School of Mines has performed a definite function to the satisfaction of mine managers and employers; students have received a training which has well fitted them to occupy responsible positions, and the continuance of instruction on existing lines, as being suited to the requirements of the majority of students, is justified by the results achieved in the past.

The Honour List, which is necessarily incomplete, includes 135 names of students and members of the staff who have enlisted. Of these, 50 are officers. Two former Lecturers and one Associate of the School have recently gone to England under engagement to the Minister for Munitions as Munitions Chemists.

During the year the war has drawn away a number of students, especially those furthest advanced in their studies. The effect of this has been most felt in the Mining and Surveying Department. During the last twelve months, six recent senior surveying students, four of whom held positions as Assistant Surveyors on the Mines, have been granted commissions in regiments where their engineering knowledge will have a special value.

The School has made steady progress throughout the year. In the Chemistry Department, in addition to the routine work of instruction and the conduct of free assays for prospectors, a research has been conducted on Boiler Feed Water, the report for which is now nearly completed. The research scholarship of £100, granted to an Associate of the School, was the generous gift of Mr. Robert Falconer, and, in view of the great importance of research work in connection with the mining industry, it is to be hoped that facilities will be afforded for further work in this direction. A number of intending students were unable to gain admission to the Gas Engine Class, and there is a constant demand for extensions in the Engineering Workshops. The Gas Engine and Indicator lectures have been very popular and have enabled men formerly quite unfamiliar with the driving of gas plants to obtain a good working knowledge of practical operations. This has been of considerable value to the mines, especially in the out districts. The Geology Department has given valuable information by making mineral determinations and by displaying in the museum representative collections of rocks and minerals. The Fitting and Turning classes have been kept busy, and have produced excellent samples of finished work. The Engine-driving classes continue to successfully prepare students for the Government examinations, and, up to date, over 100 students have gained Government Certificates of Competency. During the year students of the Electrical Engineering classes have secured appointments as follows:—

Electrician, Great Cobar Copper Mines.
Electrician, Edna May Gold Mining Company.
Electrician, Associated Gold Mines.
Assistant Electrician, Edna May Gold Mining Company.
Assistant Foreman, Kalgoorlie Electric Station.
Two Apprentices, Kalgoorlie Electric Station.

Many of the past students have given up responsible positions in order to enlist, and in all departments the demand for qualified students to fill positions on the mines has been greater than the School could supply.

The following is a list of some recent appointments:—

Name and Position.

Bradley, W. S.—Munitions Chemist, England.
Banks, R.—Metallurgist, South Kalgurli Mine.
Butement, J. C.—Draughtsman, Royal Flying Corps, England.
Griffiths, D. D.—Lecturer in Engineering Subjects, Hawthorn, Victoria.
Jensen, E.—Metallurgist, Edna May Mine.
Lang, J. H.—Electrician, Edna May Mine.
Grigg, J.—Assistant Surveyor, Ivanhoe Gold Mine.

During 1916, 298 free assays and mineral determinations were made for prospectors of material from Crown lands not held under lease for mining purposes:—

	No.
Assays for Gold and Silver	211
Assays for Copper, Lead, Tin, etc. ..	24
Determinations of Rocks, Minerals, etc.	63
Total	298

The number of free assays for gold and silver has been somewhat less than in former years, but it is a significant fact that prospectors are now paying more attention than hitherto to the base metals and the less exploited minerals of economic importance.

The Annual Demonstration was held during the last week in February. The classrooms, laboratories, and workshops were thrown open to the public; details in connection with the courses of instruction were explained to visitors, and considerable interest was evinced in the facilities afforded to students.

THE WORK OF THE SCHOOL.

The general work of the School embraces Associateship Courses in Mining, Metallurgy, and Engineering, together with shorter Courses for Assayer's, Mine Surveyor's, and Mechanical and Electrical Worker's Certificates.

The Preparatory Classes which have been established in Mathematics, Chemistry, Physics, Geology, and Drawing, by affording a general introduction to Science, constitute a valuable course of instruction, not only for mining students, but also for those who desire to take up other occupations. They form a connecting link with the State and Secondary Schools, and provide students with a sound preparatory training in the subjects of the regular courses of the School of Mines.

The Mathematical Department is divided into two main sections—(a) Pure Mathematics; (b) Practical Mathematics. In the former, students who intend to proceed with their science work and qualify for an Associateship or for entrance to the University are given a thorough training from the preparatory stages upwards. In the latter section the work is arranged to suit the special requirements of artisans and those who desire to obtain a practical knowledge of the subject which shall be immediately useful to them in their daily work. Special attention is devoted to problems in mensuration, the use of squared paper, logarithmic tables, the manipulation of pocket book formulæ and the calculations connected with everyday problems in mining and engineering. Students in the advanced class are taught the applications of the differential and the integral calculus.

In Physics the student acquires skill in handling various kinds of apparatus and in making accurate measurements. He gains further experience in more delicate experiments during his second year and gathers together a valuable fund of information concerning natural phenomena. In a more advanced course, the higher work in sound, light and electricity receives a more specialised mathematical treatment. The Department is well equipped with apparatus for the demonstration of the lectures and for the conduct of laboratory experiments in all sections of the work.

The work of the Department of Metallurgy embraces instruction in Chemistry, Assaying, and Metallurgy. A thorough training in the theoretical portions is given by means of lectures, but students are

required to spend a considerable time in the laboratories. The courses are made as practical as possible, the aim being to so equip students that they may speedily become competent to fill responsible positions.

In addition to the preparatory course, the work in Chemistry covers three years. One section deals with physical and engineering chemistry, and in the final stages practical instruction is given in advanced inorganic analysis. This includes the analysis of ores and metallurgical products of iron and steel, of natural waters, flue gases, etc., the methods of examination of lubricating oils and fuels, and the determination of calorific power.

In Assaying, the student makes tests as to the most suitable mode of treatment of various classes of ore and gains experience in the technical methods of analysis of ores and metallurgical products. The well-equipped laboratories afford students excellent opportunities of gaining a thorough practical acquaintance with the technical methods used in outside practice.

The two years' course in Metallurgy deals generally with the metallurgy of the common metals, and particularly with the metallurgy of gold. Students, before obtaining their Associateship in this course, are required to write a thesis on some phase of metallurgical practice and to have 12 months' experience in an approved metallurgical works.

The Engineering Classes form a very important section of the School work. A practical course of instruction has been arranged in Electrical Engineering. The rapidly increasing demand for the electrical driving of sections of mining and manufacturing plants and for the reduction of maintenance costs requires that the student should be thoroughly familiar with the various classes of machines and their operation under all conditions of load, and tests dealing with the efficiency, regulation and registration of the machines and instruments used in the electrical distribution of power are regularly conducted by the students as part of their course work.

In addition, classes of a more elementary nature are conducted in Practical Electricity for the benefit of electrical workers who are concerned more particularly with mechanical operations.

The Mechanical Engineering Laboratory is equipped with an experimental engine, a boiler, a surface condenser, an absorption dynamometer, steam engine indicators, a Carpenter's calorimeter, and all the necessary appliances for the determination of steam consumption, mechanical efficiency, and the conditions for maximum economy. In all large mining centres the question of economy in power production, leading to the reduction of working costs, is receiving increased attention, and it is of the highest importance that the Mining Engineer should possess thorough knowledge of all questions bearing upon the economical running of the engines under his charge, and also that he should be able to locate and remedy defective conditions which lead to losses in actual practice. Students of the School are given practice in taking indicator diagrams, in testing the quality of the steam by means of the steam calorimeter, and in carrying out actual working tests on efficiency, which, together with periodical visits to the engine rooms of the mines, will give the students a thorough grounding in the fundamental principles of Mechanical Engineering.

A Gas Producer Plant has been installed, and special classes dealing with the theory and practice of gas producer plants now form a feature of the school work. Instruction is first given in the operation and management of the various types—the ordinary up-draft and down-draft and the larger pressure producers. The lecture work is supplemented by numerous experimental tests, and each student is afforded an opportunity of actually operating the producer in the School Experimental Plant.

The second term is devoted to Gas and Oil Engines. In the series of lectures dealing with the erection, operation, and management of the suction gas engine, special attention is directed to the precautions necessary to prevent breakdowns and to the conditions requisite for obtaining economy in working.

In the Engineering Laboratory the students take part in the practical demonstrations and learn to start and stop the gas engine and to manipulate the various appliances used in testing for efficiency.

During the first year of the Mining Course the principles and methods of mining are dealt with from a broad standpoint. In the more advanced instruction of the second year special attention is devoted to Mine Sampling, Mine Accounts, Mine Administration, and Ore Dressing. In Surveying, during the first year of the course, the student becomes acquainted with instrumental work and the calculations, tabulations, plotting, etc., connected with the more common types of mine surveying problems. In the second year he is instructed in the measurement of stope work under various conditions, and gains a working knowledge of plane table, tacheometric and topographical work, roads, dams, and quantity work, in fact all the ordinary engineering problems likely to be met with by a mine surveyor.

Instruction is also given in sun and star observations for latitude, meridian time, etc. Each student has regular practice with the instruments, of which the School possesses a good supply, and at the end of his course he is required to make a mine survey, construct a plan, and hand in all field notes and calculations connected therewith.

Surveying students taking certain other classes laid down in the syllabus are able to qualify for a mine surveyor's certificate, the course for which is intended to equip the student with a sound knowledge of modern requirements. On the completion of his course, a student is able to do reliable work and his value will rapidly increase with experience. Not only should he be able to conduct all the instrumental work connected with the plumbing of shafts, the taking of the surface meridian underground, the making of connections, the laying out of work for the guidance of miners, the measurement of stopes, tacheometric and contour work and the laying out of roads, cuttings and embankments, but he should be competent to conduct the survey of a large area involving some knowledge of astronomical work. Possessing a fair working knowledge of general and mining geology and mine sampling, he will be able to distinguish the common rocks and minerals, to determine faults and their influences, to record variations in the ore bodies and the enclosing rock masses, to plot mining and geological plans, to measure, sample, and value ore bodies, make assay plans,

direct exploratory work and generally supply the management with timely and reliable data in connection with underground workings.

The classes in Geology, Mineralogy, and Petrology which form an essential part of the course in Mining and Metallurgy, have been suitably provided with apparatus and material, and there is a preparatory course for beginners. The department is of especial value to those interested in the application of geology to mining problems.

The district affords excellent examples of the main features of mining geology, and the school possesses numerous rock sections and hand specimens illustrative of local conditions. Practical instruction in the preparation of maps, in the methods of mining and geological examination of properties and in the general principles of field geology, forms an essential portion of the course. The Museum contains representative collections of rocks and minerals which are set out in such a way as to be of educational value to the students and a source of interest and instruction to prospectors and the general public.

To meet the requirements of those who are unable to undertake a full course for an Associateship, partial courses have been arranged in several sections of the School work.

The Scholarships offered by the Mines Department fully meet the requirements of the local students and also afford youths resident outside of the Kalgoorlie district facilities for attending the School and obtaining a training in School of Mines subjects. The School has been fortunate in securing valuable gifts of prizes and scholarships from those interested in the work of the institution, and the Mine Managers have afforded students every opportunity of gaining practical experience in the Mines and Batteries, and have shown their appreciation of the work of the School by their readiness in giving employment to the students.

The students continue to secure responsible positions, which in many cases have been obtained directly as a consequence of the technical training given at the School, and the fact that the students who have been through a set course of study at the local School of Mines are so well able to take their place in outside practice is encouraging to the younger students and is a good criterion of the standard of instruction maintained in all the courses.

Arrangements are being made for the conduct of certain classes in connection with the University Course in Engineering. Students of the School of Mines may be admitted to the University Examinations in subjects wherein they have attended at the School of Mines courses of instruction which have been approved by the Senate after a report by the Professorial Board thereon. As far as practicable, University examinations for students of the School of Mines will be held at Kalgoorlie.

Practical Classes.—As far as possible, prominence has been given to practical work in connection with School classes. Students have excellent opportunities of gaining practical experience in Chemistry, Assaying, Metallurgy, and Engineering in the well equipped laboratories. Models for the Mechanics, Engine-driving, and Mining Classes, suitable collections of rocks and minerals for the Geology and Mineralogy classes, and instruments for the Surveying Class, enable the lecture work to be thoroughly well demonstrated. A special testing room has been set aside for Practical Electricity, while increased accommodation has been provided for the practical classes in Physics. Field practice in Surveying is regularly carried on throughout the year, and in Geology the students make periodical excursions into the country and so gain a fuller understanding of the class work as well as an intimate knowledge of the geology of the district.

Examinations.—The examinations held annually in connection with the Diplomas and Certificates issued by the Mines Department have, in the past, been conducted by Co-examiners appointed by the Minister for Mines, but were, this year, conducted by members of the Staff. The appointment of outside examiners for the written papers has tended to maintain a high standard of work at the School. The practical examinations, covering the whole work of the students throughout the year, as well as the final test questions, are left in the hands of the staff.

Under the system by which the School makes Free Assays of material obtained from Crown lands not held under lease for mining purposes, a considerable amount of useful information has been given to prospectors. The assay and mineral determinations have all been made by responsible members of the staff, who have spared no pains to insure accuracy in the results and to give full information to the prospectors.

It is with feelings of sincere regret that I record the death of Mr. J. Wilshere in July, 1916. He had gained the goodwill of the students and the staff, and always discharged his duties in a thoroughly conscientious manner.

Throughout the year the Assistant Director and the members of the School Staff have rendered excellent service, and my thanks are due to them for their cordial co-operation in the proper conduct of the work of the School.

I have, etc.,

F. B. ALLEN,
Director, School of Mines.

WESTERN AUSTRALIAN SCHOOL OF MINES.

ROLL OF HONOUR.

Students':

Name.	Left School.	——
Ainley, F. W.	1912	
* Aitchison, J.	1910	
Anderson, A. F. S.	1914	
Bennett, A.	1909	
Bolton, C. A.	1906	
Bonney, J.	1915	
Burrows, M. F. G.	1910	
Burton, R.	1910	Aircraft.
Campbell, A. M.	..	
Cave, C. G.	1912	
Chauncey, A. P.	1915	Artillery.
Cliff, N. J.	1913	
* Cloutman, W. R.	1913	Lieutenant, Royal Engineers.
* Colles, F. G.	1915	
Cook, C. E.	1914	Lieutenant.
Cramb, F. B.	1907	
Davies, M.	1914	Lieutenant.
Davies, W. E.	1911	Royal Welsh Fusiliers.
Denholm, J. H.	1904	
Doupe, J.	1913	
Durant, W. M.	1914	Corporal, 43rd Battn., New Zealand Engineers.
Edmondson, E.	1914	2nd Lieutenant.
Edwards, H.	1913	
Elliot, T.	..	Lieutenant.
Fairley, T. C.	1915	Lieutenant.
Feutrill, H.	1912	
Fisher, W. H.	1913	Sergeant.
* Fowler, R.	1911	Lieut., Imp. Reservist, 1st Battn., Duke Cornwall's Lt. Infantry
Fraser, M. A.	1908	Lieutenant.
* Freeman, D. S.	1905	Captain.
Gabel, J.	1912	Lieutenant.
Geldard, L. J.	1915	
Gibson, H.	1907	
Gourlay, E. J.	1914	Lieutenant, Tunnellers' Corps.
Gregor, M.	1915	Sergeant, 44th Battalion.
Gregson, W.	1915	Corporal, Signaller.
Gwyther, E. M.	1912	
Hallahan, R. T.	1915	Sergeant, 44th Battalion.
Hallahan, W. H.	1914	Lieutenant.
* Hallahan, W. J.	1913	
* Hallahan, A.	..	Sergeant.
Hall, H. M.	1915	
Halliday, R. S.	1913	
Hawke, C.	1911	
Heery, F.	1915	Signaller.
Henderson, J.	1915	Corporal, Engineers.
Hendry, C. A.	1912	Lieutenant, O.C. 7/44th.
Holman, J. G.	1913	Sergeant.
Horswill, V.	1914	Sergeant (D.S.M.)
Hunt, C. R.	1914	
Ickeringill, M.	1914	Corporal.
Ingle, H. J.	1915	
Kelly, R. O'D.	1916	Corpl., Pioneers.
Ketterer, V.	1909	Sergeant.
* Kirby, T.	1913	
Kyle, H. B.	1914	
Lake, J. E.	1914	
Le Mesurier, G. R.	1916	
Leslie, C. W.	1911	
Lucas, R. E.	1916	
* Luttrell, W. P.	1914	
* Mahoney, D.	1913	
Mayers, J. W.	1915	
McInerney, P.	1913	Corporal.
McKenzie, H. J.	1913	Farrier Sergeant.
McLeod, P.	1915	Corporal.
Menner, C.	1915	
Mills, D. W.	1915	
* Mincham, W.	1911	
Missingham, D.	1909	
Mortimore, J. T.	1907	
Mundle, E. B.	1915	Sergeant Major.

* Dead.

ROLL OF HONOUR—*continued.*

Students—continued.

Name.	Left School.	——
Nankiville, N. H.	1915	
Newman, H. B.	1915	
Nicholas, F.	1915	Corpl., Signaller.
Okely, H. J.	1915	
Oldfield, F.	1915	
Orr, J. D.	1914	
Peat, J.	1914	Captain.
* Perris, A. S.	1914	
Pettitt, J.	1913	
* Phillipson, C. L.	1915	Lieutenant.
Plant, W.	1915	
Podger, W. G.	1914	
Pond, G.	1915	
Priestman, T.	1914	A.M.C.
Renowden, J. R.	1907	
Retchford, A. R.	1914	Sergt., Signaller.
Richardson, J.	1916	
Rosekelly, W. G.	1915	
Rowe, A.	1912	
Rowe, F. W.	1913	Lieutenant.
Sait, G. E.	1916	
Scott, W. W.	1914	Sergeant.
Shaw, C. C.	1915	Lieut., Tunnelling Corps.
Shepherd, J. P.	1916	
Shervill, A.	1915	
* Smith, J. L.	1914	Engineers' Corps.
Stahl, F. J.	1914	
Stokesbury, H.	1912	
Strassburg, R. E.	1915	Sergeant.
Sykes, G. F.	1915	A.M.C.
Taylor, C.	1908	Sergt. Major.
Taylor, R. J.	1916	
* Thompson, R.	1914	
Walker, P. G.	1915	
Wallace, G. D.	1915	
Watt, E. S.	1913	Sergeant.
Watt, T. J.	1912	Sergeant.
Webster, R. W.	1913	
Williams, E.	1907	
Williams, F. T.	1908	

Staff:

Name.	Left School.	——	Former Position.
Burgess, S. H. D.	1909	L/Corpl.	Cadet.
Corlette, J. M. C.	1907	Major (N.S.W.)	Lecturer.
Curran, F. J.	1915	Corporal	Cadet.
Edmondson, F. C.	1915	Sergeant, A.M.C.	Cadet.
Galt, W.	1915	Corpl.	Cadet.
Getty, A.	1915	Lieutenant.	Demonstrator.
Jamieson, W. T.	1909		Cadet.
Macbeth, R. A.	1915	Corporal	Cadet.
Pike, R. W.	1912	Engineers, England	Demonstrator.
Rosenberg, J. M.	1915	Corporal	Cadet.
Rowledge, H. P.	1915	Sergt., Pioneers	Demonstrator.
Shand, F.	1907		Assistant Clerk.
Webster, F.	1914	Lieutenant	Cadet.

Munition Workers, Etc.:

Name.	Left School.	——
Bradley, W. S.	1911	Explosives Chemist.
Butement, J. C.	1915	Aircraft Works, England.
Jarman, A. H.	1915	Munitions, England.
Lloyd, A. C. (Staff)	1915	Explosives Chemist, England.
McLennan, B.		Munitions.
McMullen, F. D.	1913	Munitions, England.
Parry, R. E. (Staff)	1914	Explosives Chemist.
Peters, W. M.	1914	Munitions.
Smith, J. E.	1916	Munitions, England.

* Dead.

DIVISION VI.

OPERATIONS OF "THE INSPECTION OF MACHINERY ACT, 1904."

Office of the Chief Inspector of Machinery,
Treasury Buildings,
Perth, 12th April, 1917.

Annual Report of the Chief Inspector of Machinery and Chairman of the Board of Examiners for Engine-Drivers for the Year ending 31st December, 1916, with Statistics.

The Under Secretary for Mines, Perth.

Sir,—

I have the honour to submit, for the information of the Hon. the Minister for Mines, the following report on the operations of "The Inspection of Machinery Act, 1904," in the Districts proclaimed thereunder, together with statistical tables for the year ending 31st December, 1916.

For convenience of reference I have divided the report as follows:—

(1.) Inspection of Boilers.
(2.) Explosions and interesting defects.
(3.) Inspection of machinery.
(4.) Prosecutions under the Act.
(5.) Accidents to persons caused by machinery.
(6.) Engine-drivers' examinations and kindred matters.
(7.) General.

DIVISION I.

Inspection of Boilers.

The number of boilers useful as steam generators on the register at the end of the year was 3,026 as against 3,021 at the end of 1915. There is, therefore, an increase of five boilers. There were 34 new registrations during the year. As against this, 22 were permanently condemned, and seven were transferred beyond the jurisdiction of the Act, making an increase of five as against the previous year.

Operations in the various Districts.

The following return shows the operations in the various proclaimed Districts in connection with boilers, as compared with 1915:—

Return showing Operations in the Proclaimed Districts (Boilers only) during the Year ending 31st December, 1916.

	Totals.	
	1916.	1915.
Total number of boilers registered and capable of being used as steam generators ..	3,026	3,021
New boilers registered during the year	34	28
Inspections for year—Thorough	1,339	1,574
Working	171	246
Boilers condemned during year—Temporarily	60	86
,, ,, ,, Permanently	22	23
Boilers converted into tanks, air receivers, etc., during the year	..	2
Boilers transferred beyond jurisdiction of this Act	7	22
No. of notices issued for repairs during the year	312	385
No. of certificates issued (including those issued under Sec. 30) during the year	1,349	1,551
No. of useful boilers out of use at end of year	1,719	1,496
	£ s. d.	£ s. d.
Total amount of fees for 1916	3,018 9 11	..
,, ,, ,, 1915	..	3,346 3 0
Total number of Inspectors	7	7

One inspector absent on furlough, seven months.

Two inspectors absent on sick leave, several weeks.

The number of "thorough" and "working" inspections was 1,339 and 171 respectively, making a total of 1,510 inspections. The above figures show a decrease of 235 thorough inspections and 75 working inspections, or 310 inspections in all, which represents a decrease of 17 per cent. on last year's operations. This reduction does not, unfortunately, reduce the necessary amount of travelling to any serious extent.

In the South-Western District 902 inspections were made, or 59 per cent. of the total number. In this District there was a shortage of 228 inspections, or 20 per cent. as against last year. This is accounted for by the almost total collapse of the timber export

trade. In the Kalgoorlie group the inspections were well up to the mark, the decrease being only 4 per cent. In the North Coolgardie and Mount Margaret Districts the decrease was 19.3 per cent., and in the East Murchison and Murchison and Yalgoo Districts the decrease was 26.7 per cent.

The total number of useful boilers out of use at the end of the year was 1,719, showing an increase of 223 boilers as compared with 1915.

As many boilers in this State are becoming somewhat aged, I have had a return made showing the number of useful boilers of various ages in all of the proclaimed districts.

It will be noticed that there are a large number of boilers which are rapidly attaining an age when their usefulness will be necessarily considerably curtailed. Even with the best of treatment and good feed water certain natural processes are continually going on, causing crystallisation of the material and rendering it increasingly brittle. Such boilers are, of course, an ever increasing source of anxiety to inspectors, and demand the most careful inspection. Wherever possible test strips are obtained when repairs are being executed and from these test strips a good idea can be obtained as to the necessity or otherwise for a reduction in pressure. Every care is being exercised in the case of these aged boilers, and so far with complete success.

Table showing the number of Boilers of various ages in the Proclaimed Districts.

District.	Under 15 years.	16 to 20 years.	21 to 25 years.	26 to 30 years.	Over 30 years.	Unknown age.
South-Western	639	330	146	64	46	37
Coolgardie and Yilgarn	56	115	84	17	..	..
Dundas	2	17	19	1	..	..
East Coolgardie	129	339	24	5	1	..
N.E. Coolgardie	9	33	20	1	1	..
Broad Arrow	1	16	16	2	..	..
North Coolgardie	14	92	71	2	2	..
Mt. Margaret and part of E Murchison	116	117	59	3	1	..
East Murchison (Sandstone).	31	13	3	..	..	3
Murchison and Yalgoo	80	161	45	3	..	9
Totals	1,077	1,233	487	98	51	49
Percentage of total Registrations in Proclaimed Districts	35·96	41·16	16·26	3·27	1·71	1·64

Note.—The above boilers total 2,995, which, being added to 31 in unproclaimed districts, makes the total of 3,026 shown as useful boilers on registers.

The revenue from boiler inspection fees was £3,018 9s. 11d. as against £3,346 3s. for year 1915, showing a decrease of £327 13s. 1d. You will remember that I prognosticated a further decrease in my last year's report, and I fear that unless conditions improve greatly and unexpectedly this downward trend will continue until the termination of the war.

The number of boilers permanently condemned during the year was 22 or one less than last year. The following table shows the number of boilers permanently condemned as a percentage of total inspections made, since the inception of the Act:—

Number of Temporarily and Permanently Condemned Boilers per 100 *Inspections made since* 1899.

Year.	Temporarily.	Permanently.
	per cent.	per cent.
1899	2·64	1·42
1900	2·21	·498
1901	4·34	·511
1902	5·00	·958
1903	2·43	·697
1904	3·08	·389
1905	2·84	·388
1906	3·98	·960
1907	4·36	·802
1908	3·18	·599
1909	2·89	·797
1910	4·49	1·382
1911	3·54	8·070
1912	3·93	2·471
1913	2·64	2·431
1914	2·97	2·178
1915	4·72	1·538
1916	3·97	1·456

DIVISION II.

Explosions and interesting defects.

I am again in the fortunate position of being able to report that there has been no explosion of any steam "boiler" under the jurisdiction of the Act.

In November last the inner part of a large steam jacketed copper pan was rent across. The pan was heating a tanning solution and had only a few gallons in it. It had been used for the same purpose for years and was in good order. On investigation it was found that the probable cause of the accident was "water hammer."

DIVISION III.

Inspection of Machinery.

The following return shows a classification of the power driven machinery in the proclaimed districts.

The number of groups driven by electricity is again the largest and shows an increase of 112 as against last year. Oil-driven groups hold second place, with the large increase of 575 over last year's numbers. This increase in the registrations of oil engines is largely due to increased facility of reaching outlying farming districts by means of motor cars. It has previously been found too costly both as to time and money to reach many of these places by horse and trap. There are still large numbers of such places which have never been visited, and I shall require further facilities in the direction of motor cars at an early date.

Steam-driven groups are relegated to the third place on the list, but show an increase of 20 over last year. Suction gas driven groups have increased by seven, compressed air driven plants by one, whilst groups driven by town gas and hydraulic pressure show a decrease of four and two respectively.

Return showing Classifications of various sources of Power-driving Machinery in use or likely to be used again in Proclaimed Districts during the Year ending 31st December, 1916.

Classification.	Totals.	
	1916.	1915.
No. of groups driven by steam engines ..	1,335	1,315
" " " oil engines ..	1,532	957
" " " ordinary gas engines	26	30
" " " suction gas engines	223	216
" " " compressed air ..	37	36
" " " electric motors ..	1,712	1,600
" " " hydraulic pressure	9	11
Totals	4,874	4,165

The number of lift registrations has increased from 159 in 1915 to 167 at the end of last year. The increase is small and the fact that the change to alternating current is not yet an accomplished fact in Perth probably accounts for this.

The following table shows the number and description of all the lifts in the State:—

Passenger Lifts—	
Electrically driven	58
Hydraulically driven	1
Goods Lifts—	
Electrically driven	79
Hydraulically driven	8
Belt driven	21
Total	167

With regard to lift inspection and especially passenger lifts, I have long felt that the fee originally provided, viz., 10s., was not a sufficient one. The whole of the electrical and mechanical details of these lifts have to be very carefully inspected and the time necessary to do this is often greater than that taken on a large boiler. I accordingly recommended that the fee on passenger lifts be increased to £1. A regulation to this effect was passed on December 13th, since which date the new fee has been charged.

The following return shows the work done in connection with machinery inspections:—

Return showing Operations in the Proclaimed Districts (Machinery only) during the Year ending 31st December, 1916.

	Totals.	
	1916.	1915.
Total Registrations useful Machinery	4,874	4,165
Total Inspections made ..	2,874	2,961
Certificates (bearing fees) ..	2,243	2,197
Certificates, Steam (without fees)	629	739
Notices issued "Machinery dangerous"	355	296
	£ s. d.	£ s. d.
Total amount of fees for 1916	923 9 7	..
Total amount of fees for 1915	..	918 13 5
Number of Inspectors ..	7	7

It will be seen that the registrations have been increased by 709, or 17 per cent., more than the previous year. Of these all but 17 were registered in the South-Western District. Many of the above new registrations have not yet been inspected, having materialised in response to circulars sent out from this office to persons to whom it was found plants had been sold.

Dangerous Machinery.

Three hundred and fifty-five (355) notices were issued to owners pointing out certain dangers, and requesting that proper guards be provided. The number of notices so issued was a little over 12 per cent. of the number of inspections made. The majority of the notices were issued at the first inspection after registration, and, in most cases, were cheerfully complied with.

DIVISION IV.

Prosecutions under the Act.

E. J. Barlow, Kellerberrin, was prosecuted for having used his boiler on 24th August without holding a certificate for it. The defendant pleaded guilty and was fined £1 with £1 10s. 4d. costs.

The above was the only breach committed against the Act in respect of boilers or machinery.

DIVISION V.

Accidents to persons caused by machinery.

I am pleased to report that for the third year in succession there has been a slight decrease in the number of accidents to persons, though I regret that the total number (59), includes five fatal accidents.

The following table shows the number of accidents and the percentage of the total number caused by the various kinds of "Machinery" mentioned:—

No. of Accidents.	Class Machinery.	Percentage of total Accidents.
12	Circular saws ..	20·34, including one fatal accident.
8	Belting	13·56, including two fatal accidents.
5	Ore treating machinery	8·47 per cent.
3	Fly wheels and pulleys	5 per cent.
3	Printing and Binding machinery	5 per cent.
2	Shafting	3·4 per cent., one fatal.
2	Winding engines ..	3·4 per cent, one fatal.
2	Drilling machines ..	3·4 per cent.
2	Baking machinery ..	3·4 per cent.
20	Other sources ..	each about 1·7 per cent.
59		

The chief points of interest in the above figures are as follows:—

Circular saws, always well to the front, are this year at the head of the list and provide over 20 per cent. of the total number of accidents. Quite a large number of these accidents consisted of bad cuts and loss of a finger. One, however, was fatal as already shown.

"Belting" provided 13½ per cent. of the total, and was responsible for two fatal accidents.

"Shafting" and "Winding Engines" provided the other two fatal accidents.

In most of the other cases the injuries, though many of them were severe, do not call for special remark, except that, as usual in the majority of cases,

carelessness played the chief part in causing the accident.

DIVISION VI.

Engine-drivers' examinations and kindred matters.

During the year four (4) examinations were held in Perth, two (2) in Bunbury, two (2) in Kalgoorlie, one (1) in Albany, and one (1) in Leonora.

Examinations were also advertised to be held at Geraldton, Mt. Magnet, Ravensthorpe, and Southern Cross, but as the requisite number of candidates was not forthcoming, these examinations did not eventuate. Most of the candidates from these places came to centres where examinations were held.

The personnel of the Board remains as before, viz., Messrs. H. L. Gill, J. Breydon, and myself as Chairman.

The following table shows the certificates granted and their classifications:—

Return showing total number of Engine-drivers' Certificates (all classes) granted in 1916 *and compared with* 1915.

Class of Certificate.	Unrestricted.	Restricted.	No. granted.	
			1916.	1915.
First Class Competency (including Certificates issued under Reg. 27 and Sec. 63 of the Act)	2	2	4	9
Second Class Competency (including Certificates issued under Reg. 27 and Sec. 63 of the Act)	8	16	24	22
Third Class Competency (including Certificates issued under Reg. 27 and Sec. 63 of the Act)	27	14	41	57
Locomotive Competency	..	10	10	17
Traction	2	2	4	3
Interim	4	5	9	2
Copies	..	..	8	9
Totals	..	..	100	119

It will be seen that there were 19 fewer certificates granted than in 1915, and that the total number issued is the smallest for any year since the inception of the Act.

The total number of certificates granted up to 31st December, 1916, is now two thousand five hundred and eleven (2,511).

The revenue from engine-drivers' fees for the year was £120 10s. 3d., showing a decrease of £45 4s. 9d. as compared with 1915.

The falling off of applications and revenue is probably due very largely to such large numbers of men enlisting. There are fewer men to apply and a considerably less demand for drivers.

Inquiries, Prosecutions, etc.

During the year the following prosecutions were instituted in connection with engine-drivers, viz.:—

(1.) M. H. Grahame, for knowingly employing two engine-drivers, viz., Benjamin Marsden and Edgar Brazier, to drive an engine for which neither of them held the requisite certificate (Brazier unfortunately met his death while driving this engine—*see* accidents). The defendant was found guilty on both charges and was fined £3 12s. with £5 8s. costs, or £9 in all.

(2.) Benjamin Marsden, for taking charge of an engine not being the holder of the proper certificate. Marsden pleaded guilty and was fined £1, including costs.

(3.) George Sexton, Manager of the Murchison Firewood Co., Ltd., Nallan, for driving a locomotive engine without a certificate, as required by the Act. Defendant pleaded guilty and was fined 10s. with costs.

(4.) George Carter, for the same offence as set out in case (3.) Defendant pleaded guilty and was fined 10s. and costs.

Note.—Costs in cases (3.) and (4.) amounted to £2 19s. 6d.

Several unimportant accidents, overwinds, etc., occurred during the year, which were dealt with by the Board.

DIVISION VII.

General.

Re Amending Act.

It has been decided, after further consideration by the Hon. the Minister, that a draft for an entirely new Act shall be prepared. It is intended to make all necessary inquiries in the Eastern States and elsewhere with a view to making the Bill as comprehensive and up to date as possible.

This will be taken in hand as soon as opportunity permits, and it is hoped that the Bill will shortly be launched for the consideration of Parliament.

Work done for other Departments.

The usual amount of work has been done for other Departments during the year, chiefly consisting of inspections and valuations of various plants.

Gas-testing cocks on suction gas plants.

During the year there have been several minor and one serious accident in connection with suction gas plants. From experiments made in this office I have come to the conclusion that much unnecessary risk is taken with such plants when testing the gas. In some cases inspectors have found gas being tested at a 1½in. pipe with no protecting wire gauze on it.

The testing cock opening should never exceed ½in. in diameter and should always be protected by a fine wire gauze screen. As the size of the mesh of this gauze is a matter of great importance, and as the result of experiments made proved that any

gauze which has less than 48 wires of 38 S.W. gauze per linear inch is not to be relied on, I have issued instructions accordingly. It is also an advantage to employ two screens with a space between them.

Winding Engines.

In order to standardise methods of dealing with winding engine tests, I have compiled a blue print drawing for the guidance of inspectors.

This drawing contains full and explicit directions for testing brakes, formulae for thickness of drum shells, brake friction co-efficients, and tables showing the effective crank leverage calculated for the two worst starting positions as indicated by diagrams. The data included in this blue print fills a long felt want in the matter of dealing with winding engines, particularly those used in the mining industry.

While dealing with winding engines, I would like to comment on the very small number of accidents which have occurred where neglect or carelessness could be attributed to the engine-drivers in charge.

On the larger mines, where winding is practically continuous and the possibility of accidents occurring is consequently increased, it has been quite remarkable for several years past how few really serious accidents have occurred, especially when it is remembered that the clearance between the safety hook and thimble, when the cage is at the highest position, is in many cases extremely small.

Inspectorial Staff.

This remains as in 1915. During the year one inspector was absent for seven months on furlough in the United Kingdom and the services of the two other inspectors were not available for several weeks on account of illness. With so small a staff this necessarily means a large percentage of work not done, which will have to be overtaken during the present year.

Clerical Staff.

In September last another of the clerks, Mr. Alan Roydhouse, enlisted and is now in training with the Artillery. This is the third member of our comparatively small staff who has answered the call of his country.

With the above exception, no change of any importance has occurred.

Revenue.

The total revenue from all sources for the year was £4,177 14s. 1d., made up as follows:—

	£	s.	d.
Fees for Boilers	3,018	9	11
Fees for Machinery	923	9	7
Fees for Engine-drivers' certificates	120	10	3
Incidentals (being fees for special inspections, special expenses, etc.)	115	4	4
Total	£4,177	14	1

I regret the falling off in revenue is so great—£334 4s. 10d. as compared with the revenue for 1915. It was, however, to be expected, as undoubtedly many of the industries of the State have suffered greatly from war conditions. During the year every effort has been made to collect all amounts due. Six items totalling £5 10s. have been written off as bad debts. This amount represents .13 per cent. of the total revenue, and is too small for consideration.

Mileage.

The total distance travelled by inspectors during the year was 43,853 miles, of which 23,454 were by rail, 20,049 by road, and 350 by water.

At the end of December, as all of the inspectors were in Perth, some on furlough and others here at their own expense, I arranged for an inspectors' conference.

This conference has been a long felt want. Inspectors have few opportunities, owing to the vastness of the State, of conferring and exchanging views—their work is of such a nature that such an exchange is of great value, and I felt that this opportunity was not to be missed. I am sure that good will result from the conference, and that it will lead to improved standardisation of methods.

I consider it highly essential that a similar meeting should be held at least every two years. The conference would, of course, be held at such time as would involve the least possible expense and inconvenience to the Department.

I wish to acknowledge with sincere thanks the kindly assistance rendered by the officers attached to the Crown Law and Police Departments and the Postal officials in the various districts in dealing with matters connected with the administration of the Act.

My staff have carried out their duties efficiently and well, and to them my thanks are due.

I have, etc.,

C. J. MATHEWS, M.Inst.,C.E.,
Chief Inspector of Machinery and Chairman of the Board of Examiners.

DIVISION VII.

Annual Report of the Government Analyst, Chief Inspector of Explosives, and Agricultural Chemist, for 1916.

To the Under Secretary for Mines, Perth.

Sir,

I have the honour to submit, for the information of the Honourable the Minister, my twenty-first Annual Report on the work of my Department dealing with the year 1916.

I propose to make this report very brief for reasons of economy in printing, and also because those influences arising from the war which caused me to curtail my report last year still make their influence felt.

The work of the year has included very little of a special or progressive character, and only necessary routine work has been carried out. My own personal connection with the work of the Department has been considerably interfered with during the year by special circumstances.

In the early part of the year I was absent for a month while going through a Training School for officers for the Australian Imperial Forces with a view to serving at the front. At the conclusion of my training, at the special request of the Government, I withdrew my application for active service in order to take up work as the Western Australian representative in connection with the scheme for the establishment of a Commonwealth Institute of Science and Industry which had been propounded by the Honourable the Minister of the Commonwealth. For this purpose I left on the 1st of April for Melbourne and was present at the preliminary meeting of the Advisory Council which had been called together, as the result of which I was appointed a member of the Executive Committee which was constituted to carry out the preliminary work for the proposed Institute, and with the consent of the Government I was absent in Melbourne altogether nearly eight months engaged upon this work. A special report has been made to the Honourable the Minister on this subject detailing the circumstances and the work carried out, and it is, therefore, unnecessary for me to dwell upon it here.

During my absence Mr. C. E. Stacy was appointed Acting Government Analyst and Mr. T. N. Kirton Acting Chief Inspector of Explosives, and although I was in constant touch by correspondence with the work of the Department, the direct responsibility naturally fell upon their shoulders. I should like to record the excellent manner in which these two officers performed their respective duties and the satistory manner in which they met the difficulties naturally encountered by the temporary occupant of an office.

The organisation of the Commonwealth Institute of Science and Industry marks a very important step forward in National organisation with a view to bringing about a proper co-operation between scientific knowledge and industrial enterprise. The organisation of the Institute has not yet been put on a permanent footing, but it is expected that this will be carried out during the coming year, its more rapid development having been apparently largely interfered with by other important national political questions.

GENERAL ANALYTICAL WORK.

The following table gives a summary of the laboratory work carried out in the Department during the last twelve months:—

TABLE 1.

General Classification of Analyses.

Explosives	2,106
Spirits	71
Waters	966
Soils	95
Fertilisers	23
Rocks	8
Essences	1
Foodstuffs	114
Sewage	575
Wheats and Flours	95
Criminal Investigations	55
Lime	34
Vinegar	1
Medicinal Compounds	26
Milk	261
Hydrometers	4
Miscellaneous	177
Powellising material	147
Total	4,759

TABLE No. 2.

Departments for which Work was performed.

Explosives	2,008
Commonwealth	113
Health	464
Mines	3
Public Works	173
Railways	33
Water Supply	1,461
Agricultural	184
Police	70
Private	33
State Hotels and Inspection of Liquors	75
Miscellaneous	142
Total	4,759

IMPORTATION OF EXPLOSIVES.

Important questions arose during the year touching supplies of explosives required by the mining industry in this State, but it is probably inadvisable at the present juncture to discuss these in detail. In connection therewith, however, a very important investigation was carried out on the mines at Kalgoorlie by Mr. Kirton during my absence in Melbourne by which important data were collected having a bearing upon this question. The results of these experiments have been made the subject of a special report, which has been forwarded to the Imperial and Commonwealth Governments, and it is probable that the information thus gathered may be the means of leading to permanent economy in the use of explosive power in connection with our mining industry.

STORAGE OF EXPLOSIVES.

On the Explosives Reserves throughout the State there are erected 74 magazines, owned by private firms; also three Government magazines, the total storage capacity being 1,096 tons.

There are 63 magazines licensed for explosives but not situated on special explosive reserves. These have a storage capacity of 51½ tons.

STORES FOR THE SALE OF EXPLOSIVES.

There were 95 licenses for the sale of explosives and 158 for the sale of fireworks issued during the year.

INSPECTION WORK.

Inspections to the number of 100 were carried out during the year, and the following places were visited:—Northam, Toodyay, Brookton, Parkerville, Dingup, Mahogany Creek, Smith's Mill, Bolgart, Mundaring, Dowerin, Geraldton, Goomalling, Northampton, Merredin, Yalgoo, Korrelocking, Mt. Magnet, Narrogin, Cue, Pingelly, Day Dawn, Albany, Meekatharra, Mt. Barker, Sandstone, Tambellup, Wiluna, Wagin, Lawlers, Bunbury, Mt. Sir Samuel, Denmark, Perth, Fremantle, Wickepin, Bowelling, Dumbleyung, Kukerin, York, Beverley, Bridgetown, Manjimup, Donnybrook, Gnowangerup, and Katanning.

This shows a smaller number of inspections than the previous year, due principally to the shortage of staff and to the need for economy.

Only one small lot of explosives (50lbs. in weight) had to be destroyed during the year, and the prosecutions were also few in number, being as follow:—

Date.	Offence.	Penalty.
27–1–16	Overstocking explosives on licensed premises	Fined £4 17s. 0d. Costs 1 5 0
1–8–16	do. do. do.	Fined 5 0 0 Costs 0 4 6
1–8–16	do. do. do.	Fined 1 18 6 Costs 0 4 6

The following were the explosives destroyed:—

Date.	Locality.	Kind and Quantity.	Remarks.
15–5–16	Perth ..	50lbs. Gelignite ..	Damaged by water.

At the request of the Military Department Mr. Kirton has been carrying out for some time special tests on Safety Fuses used in the manufacture of military bombs, with a view to insuring greater regularity and certainty of action.

The amended Explosives Act is still upon the stocks, and under existing circumstances is, I think, likely to be held in abeyance for an indefinite period.

ROYAL COMMISSIONS.

Two Royal Commissions have been appointed during the year in which this Department is more or less interested. The first, on the Mallee Belt and Esperance Lands, was appointed as the outcome of the report made by me in 1912 as to the presence of salt in the Esperance District, and is still sitting. The Royal Commission on Agricultural Industries has been appointed with a view to determining how the best assistance can be given to the farming industry, and embraces a very wide scope. Its inquiries will doubtless include the question of the application of scientific knowledge in the development of agriculture. At the request of the Commission some preliminary papers have already been laid before them by this Department, and it is expected a later opportunity of giving evidence will be accorded to me.

A third Board of Inquiry of a departmental nature was constituted to inquire into what is known as the "Wodgil Lands," and a series of analyses for the information of this Board was carried out in this Department in connection with their inquiry.

STAFF.

My staff has been again diminished during the year by the removal of Mr. F. J. Malloch, who has been granted indefinite leave without pay to enable him to proceed to England. Mr. Malloch was successful in being included amongst a number of chemists who were specially engaged by the Commonwealth Government for work in connection with the manufacture of munitions in England. Several other members of the staff were eager likewise to offer their services, as all are keen to contribute their share of assistance in the great struggle which is proceeding, but the staff has already been so greatly diminished that a further reduction cannot take place without crippling the necessary services which are required by the State from the Department.

As in previous years, I beg to acknowledge the cordial and ready assistance rendered to me by the Commissioner of Police and the State Mining Engineer and the officers under their control.

I have, etc.,

E. A. MANN,
Government Analyst, Chief Inspector of Explosives, and Agricultural Chemist.

By Authority: Fred. Wm. Simpson, Government Printer, Perth.

WESTERN AUSTRALIA.

DEPARTMENT OF MINES.

MINING STATISTICS,

1916.

MINING STATISTICS TO 31st DECEMBER, 1916.

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EXPLANATIONS OF SIGNS AND ABBREVIATIONS.

Gf. Goldfield.
Mf. Mineral field.
D. District.
G.M.L. Gold Mining Lease.
M.L. Mineral Lease.
Loc. Location.
L.C. Lode Claim.
Q.C. Quartz Claim.
R.C. Reward Claim.
M.R.C. Mineral Reward Claim.
M.A. Machinery Area.
Mach. L. Machinery Lease.
P.A. Prospecting Area.
T.A. Tailings Area.
T.L. Tailings Lease.
W.R. Water Right.
S.L. Special License

SUMMARY OF MINERAL PRODUCTS.

GOLD AND OTHER MINERALS PRODUCED DURING 1916, AND THE ESTIMATED VALUE THEREOF, TOGETHER WITH A COMPARISON FOR PREVIOUS YEARS, AND THE TOTAL PRODUCTION TO DATE.

DESCRIPTION OF MINERAL.	1916.		1915.		1914.		1913.		PREVIOUS TO 1913.		TOTAL TO DATE.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		£		£		£		£		£		£
1. Antimony .. .. .. (Exported) statute tons	27	580	..	..	..	..	..	..	47	860	74	1,440
2. Asbestos .. .. .. (Reported) do.	..	..	..	..	..	..	..	..	43	1,754	43	1,754
3. Bismuth .. .. .. (Exported) do.	¼	133	1	37	9	635	..	..	..	..	10	805
4. Coal .. .. (Reported) do.	301,526	147,823	286,666	137,859	319,210	148,684	313,818	153,614	2,323,137	1,069,435	3,544,357	1,657,415
5. Copper { Ore .. .. (Exported) do.	650	14,971	737	13,768	3,913	33,654	4,339	136,472	57,128	580,737	66,767	779,602
5. Copper { Ingot and Matte .. (Exported) do.	457	49,862	946	77,401	183	4,520	82	5,891	8,669	531,612	10,337	669,286
6. Godolinite .. .. .. (Reported) do.	..	..	..	..	..	..	1	112	..	..	1	112
7. Gold .. .. (Exported and Minted) fine ounces	1,061,398	4,508,532	1,210,112	5,140,228	1,232,977	5,237,353	1,314,043	5,581,701	25,731,125	109,298,872	30,549,655	129,766,686
8. Ironstone .. .. .. (Reported) statute tons	..	..	..	..	..	..	..	..	57,830	36,695	57,830	36,695
9. Lead (Ore and Concentrates) (Exported) do.	..	..	..	..	3,554	46,285	3,169	59,002	37,309	403,461	44,032	508,748
10. Lead and Silver Lead (Ore and Concentrates) (Exported) do.	428	12,033	2,883	39,032	..	..	..	..	940	8,071	4,251	59,136
11. Limestone .. .. .. (Reported) do.	..	..	..	..	..	..	..	..	93,706	18,290	93,706	18,290
12. Magnesite .. .. .. (Exported) do.	12	47	688	1,196	..	..	..	..	..	..	700	1,243
13. Mica .. .. (Exported) do.	*	10	*	26	4	323	..	..	*	304	..	663
14. Pig Lead .. .. .. (Exported) do.	3,523	74,930	13	302	..	..	..	..	684	13,306	4,220	88,538
15. Pyritic Ore .. .. .. (Reported) do.	4,409	2,263	6,558	2,368	9,759	3,485	10,216	3,658	17,565	6,072	48,507	17,846
16. Scheelite .. .. .. (Exported) do.	3	438	..	..	..	..	..	..	4	140	7	578
17. Silver .. .. .. (Exported) fine ounces	173,012	22,258	222,159	24,295	193,057	23,227	188,020	23,420	2,427,219	287,220	3,203,467	380,420
18. Tantalite .. .. .. (Exported) statute tons	47	9,375	..	..	..	..	..	..	18	6,129	65	15,504
19. Tin .. .. (Exported) do.	463	49,101	429	41,391	363	35,649	484	72,142	12,159	1,060,315	13,898	1,258,598
20. Wolfram .. .. .. (Exported) do.	1	128	¼	25	½	40	1	86	12	1,116	15	1,395
21. Zinc .. .. (Exported) do.	14	630	7	143	22	379	..	..	141	4,285	184	5,437
Unenumerated .. .. (Exported)	..	303	..	78	7	40	..	17	..	6,196	..	6,634
TOTAL VALUES	..	£4,893,417	..	£5,478,149	..	£5,534,274	..	£6,036,115	..	£113,334,870	..	£135,276,825

* Weight not stated.

AUSTRALASIAN MINERAL PRODUCTION.

COMPARATIVE TABLE SHOWING THE OUTPUT OF ALL MINERAL PRODUCTS FROM THE SEVERAL STATES OF AUSTRALIA AND THE DOMINION OF NEW ZEALAND DURING 1916.

DESCRIPTION OF MINERAL.	Western Australia.		New South Wales.		Queensland.		Victoria.		Tasmania.		South Australia.		New Zealand.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		£		£		£		£		£		£		£
Gold .. .. fine ounces	1,061,398	4,508,532	108,145	459,370	215,162	913,951	256,653	1,090,194	15,790	67,072	7,769	33,000	282,318	1,199,212
Copper .. .. statute tons	457	49,862	6,171	586,127	19,519	2,265,422	..	..	6,402	886,454	7,276	822,527	..	..
Copper Ore .. do.	650	14,971			..	..	..	..	..	..	..	..	..	..
Pyritic Ore .. do.	4,409	2,263	..	..	..	..	..	..	..	..	..	..	..	..
Lead and Silver-Lead .. .. do.	3,951	86,963	275,315	3,735,256	615	19,193	..	..	11,229	153,796	243	4,659	..	..
Manganese .. do.	..	..	..	..	643	2,793	..	..	..	..	544	2,700	..	..
Platinum .. .. fine ounces	..	..	82	687	..	..	..	..	..	..	..	..	..	..
Silver .. do.	173,012	22,258	2,801,507	349,367	243,084	31,395	8,746	1,239	..	..	3,427	514	787,053	85,111
Tin .. .. .. statute tons					1,707	181,401	..	..	..	..	..	..	..	..
Black Tin .. do.	463	49,101	2,129	306,497	..	..	..	..	..	..	..	..	..	..
Tin Ore .. do.					..	..	122	12,955	2,855	350,852	..	..	..	..
Tantalite	47	9,375	..	..	..	..	..	..	..	..	..	..	..	..
Scheelite .. .. do.	3	438	81	13,719	..	..	..	..	..	..	..	..	5,319	49,070
Wolfram .. .. do.	1	128	183	31,163	370	57,813	..	100	86	16,910	..	28	..	..
Zinc (Spelter and Concentrates).. do.	14	630	209,741	961,849	..	..	..	..	..	..	..	..	..	..
Antimony (Metal and Ore) .. do.	27	580	616	13,334	192	3,965	3,259	77,275	..	..	..	..	..	..
Bismuth (Metal and Ore) .. .. do.	¼	133	30	5,473	4	1,530	..	229	4	1,059	..	..	..	..
Alunite .. .. do.	..	..	325	1,980	..	..	..	..	..	..	134	670	..	..
Coal .. .. do.	301,526	147,823	8,127,161	3,336,419	907,727	389,348	420,098	216,875	55,575	27,736	..	..	328,183	326,553
Coke .. .. do.	..	..	437,587	387,571	..	..	..	..	..	..	..	..	33	57
Shale (Oil) .. do.	..	..	17,425	17,772	..	..	..	..	..	..	..	..	..	..
Iron .. .. do.	..	..	52,556	197,085	..	..	..	..	..	..	187,329	200,107	..	..
Iron "Oxide" .. do.	..	..	2,461	2,695	..	..	..	..	..	..	..	..	..	..
Ironstone .. do.	..	..	1,472	1,083	44,161	37,781	..	..	..	..	1,000	275	..	..
Lime .. .. do.	..	..	26,063	38,958	..	..	..	..	..	..	..	..	391	63
Limestone .. do.	..	..	64,928	20,700	142,018	45,973	5,449	1,689	..	..	74,641	23,325	..	..
Magnesite .. do.	12	47	..	..	..	..	99	90	..	..	166	332	..	..
Molybdenite .. do.	..	..	54	22,066	81	34,369	..	..	..	..	..	..	..	..
Phosphate Rock .. do.	..	..	..	..	..	..	..	..	..	..	5,013	5,839	..	..
Precious Stones	..	..	..	22,648	..	15,233	..	..	..	..	..	750	..	..
Mica .. .. do.	..	10	..	..	..	..	..	..	..	..	..	..	..	..
N.E.I.	..	303	..	463,923	..	20,840	..	4,037	..	17,171	..	118,148	..	393,273
Total Values	..	£4,893,417	..	£10,975,742	..	£4,021,007	..	£1,404,683	..	£1,521,050	..	£1,212,874	..	£2,053,339

PART I.—GOLD.

TABLE I.

MONTHLY PRODUCTION OF GOLD, IN FINE OUNCES, SHOWING THE QUANTITY REPORTED TO THE MINES DEPARTMENT DURING 1916.

GOLDFIELD.	DISTRICT.	JANUARY.		FEBRUARY.		MARCH.		APRIL.		MAY.		JUNE.		JULY.	
		District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.
		ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
Kimberley ...	...	..	..	..	..	..	6·00	..	27·00	..	..	..	78·39	..	..
Pilbara	Marble Bar ...	31·58	133·85	127·95	507·82	384·89	1,092·14	3·57	34·07	315·71	334·00	233·88	233·88	1,061·11	1,061·11
Do.	Nullagine ...	102·27		379·87		707·25		30·50		18·29		..		..	
West Pilbara ...	...	..	1·69	..	20·84	..	97·63	..	13·58	..	89·66	..	105·63	..	13·68
Ashburton ...	...	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gascoyne	...	..	5·30	..	..	..	..	..	..	..	..	..	..	..	..
Peak Hill ...	...	..	32·15	..	..	..	..	..	..	..	..	..	717·50	..	119·23
East Murchison ...	Lawlers ...	516·87	3,890·65	549·75	3,420·69	544·44	3,705·31	493·87	4,673·18	431·29	4,479·54	387·05	3,132·73	1,038·40	4,199·59
Do.	Wiluna ...	940·78		630·36		1,069·64		1,598·13		1,643·96		726·37		1,341·80	
Do.	Black Range	2,433·00		2,240·58		2,151·23		2,581·18		2,404·29		2,019·31		1,819·39	
Murchison ...	Cue	258·40	5,869·70	320·12	4,673·77	196·93	4,257·82	511·32	4,460·48	397·04	5,369·75	309·14	7,860·72	607·24	7,196·94
Do.	Meekatharra	5,136·03		3,791·58		2,796·65		2,779·38		2,704·76		4,758·02		4,238·72	
Do.	Day Dawn ...	71·88		33·59		..		598·74		1,392·44		1,653·11		1,734·83	
Do.	Mt. Magnet ...	403·39		528·48		1,264·24		571·04		875·51		1,140·45		616·15	
Yalgoo	...	..	386·93	..	176·80	..	1,060·67	..	544·70	..	786·32	..	847·03	..	983·81
Mt. Margaret ...	Mt. Morgans	616·50	8,651·19	698·40	8,530·66	732·60	6,935·91	718·50	8,288·65	734·51	8,408·46	652·42	7,577·96	716·90	9,302·09
Do.	Mt. Malcolm	4,954·79		4,630·51		3,371·69		4,831·45		5,009·49		4,145·66		5,771·25	
Do.	Mt. Margaret	3,079·90		3,201·75		2,831·62		2,738·70		2,664·46		2,779·88		2,813·94	
North Coolgardie	Menzies ...	3,169·66	3,613·67	2,687·97	3,060·94	4,502·22	5,017·76	3,598·32	4,133·27	3,113·99	4,818·10	2,926·13	4,067·44	3,317·41	4,225·49
Do.	Ularring ...	319·52		173·39		209·16		145·48		828·69		420·34		..	
Do.	Niagara ...	7·77		22·95		27·67		105·42		654·82		36·09		189·86	
Do.	Yerilla ...	116·72		176·63		278·71		284·05		220·60		684·88		716·22	
Broad Arrow ...	...	..	1,713·27	..	2,364·16	..	1,732·86	..	1,652·71	..	1,347·63	..	1,554·29	..	1,921·01
N.E. Coolgardie ..	Kanowna ...	511·23	511·23	502·31	502·31	555·12	555·12	609·90	609·90	396·11	396·11	513·29	513·29	496·40	496·40
Do.	Kurnalpi ...	..		..		..		..		..		..		..	
East Coolgardie ...	East Coolgardie	29,281·22	29,418·93	52,393·10	52,602·64	53,322·28	53,416.45	48,802·34	48,949·66	51,810·39	51,908·74	53,953·74	54,039·73	52,372·47	52,460·56
Do.	Bulong ...	137·71		209·54		94·17		147·32		98·35		85·99		88·09	
Coolgardie ...	Coolgardie ...	298·71	349·63	362·64	446·41	840·74	1,915·30	794·13	1,601·26	464·17	560·81	773·64	1,671·40	1,036·30	1,391·62
Do.	Kunanalling	50·92		83·77		1,074·56		807·13		96·64		897·76		355·32	
Yilgarn	...	..	6,299·79	..	7,508·49	..	8,239·47	..	6,217·71	..	7,225·20	..	7,763·53	..	7,316·17
Dundas	...	..	1,878·45	..	1,883·36	..	1,862·43	..	1,727·64	..	2,085·87	..	1,989·08	..	2,079·58
Phillips River ...	...	..	76·61	..	450·29	..	319·27	..	197·88	..	430·11	..	692·99	..	28·70
State generally ...		..	98·97	..	..	..	65·75	..	..	..	68·46	..	96·09	..	97·94
TOTAL Fine ounces ...		..	62,932·01	..	86,149·13	..	90,279·89	..	83,131·69	..	88,308·16	..	92,941·68	..	92,891·92
TOTAL Sterling value		**£267,318**		**£365,938**		**£383,485**		**£353,121**		**£375,109**		**£394,791**		**£394,580**	

TABLE I.—*Monthly Production of Gold, in Fine Ounces*—continued.

GOLDFIELD.	DISTRICT.	AUGUST.		SEPTEMBER.		OCTOBER.		NOVEMBER.		DECEMBER.		TOTAL FOR 1916.	
		District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.
		ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
Kimberley	...	..	10·45	..	9·58	..	..	..	..	..	30·49	..	161·91
Pilbara	Marble Bar ...	598·90	611·01	394·42	605·02	300·49	300·49	53·81	750·64	9·27	217·57	3,515·58	5,881·60
Do.	Nullagine ...	12·11		210·60		..		696·83		208·30		2,366·02	
West Pilbara ...	...	..	75·82	..	56·90	..	·29	..	7·09	..	126·03	..	608·84
Ashburton ...	...	..	..	..	..	..	..	..	..	..	..	..	..
Gascoyne	...	..	..	..	..	..	9·18	..	..	..	..	..	14·48
Peak Hill	...	..	761·84	..	3 0·70	..	187·28	..	196·41	..	74·18	..	2,389·29
East Murchison ...	Lawlers ...	695·80		660·07		135·11		649·65		477·11		6,579·41	
Do. ...	Wiluna ...	1,739·38	4,343·59	1,401·89	4,465·56	974·40	2,805·01	1,513·27	3,967·32	952·15	3,728·27	14,472·13	46,811.44
Do. ...	Black Range	1,908·41		2,403·60		1,695·50		1,804·40		2,299·01		25,759·90	
Murchison	Cue	867·07		526·09		522·25		435·27		1,060·42		6,011·29	
Do.	Meekatharra	4,776·20	9,143·88	6,541·08	10,198·32	4,882·86	8,512·95	4,491·69	8,559·10	4,425·59	8,319·46	51,322·56	84,422.89
Do.	Day Dawn ...	2,992·88		2,750·04		2,389·25		2,408·68		2,109·27		18,134·71	
Do.	Mt. Magnet ...	507·73		381·11		718·59		1,223·46		724·18		8,954·33	
Yalgoo	...	..	1,011·84	..	388·15	..	106·23	..	1,424·32	..	477·89	..	8,194·69
Mt. Margaret ...	Mt. Morgans	616·60		755·01		713·40		916·95		568·20		8,439·99	
Do. ...	Mt. Malcolm	5,187·83	8,193·91	4,988·41	8,626·53	4,923·76	9,134·01	5,096·15	9,014·77	4,650·14	7,948·20	57,541·13	100,612.34
Do. ...	Mt. Margaret	2,389·48		2,883·11		3,496·85		3,001·67		2,749·86		34,631·22	
North Coolgardie...	Menzies ...	2,719·16		2,363·95		2,743·19		2,876·30		2,738·05		36,756·35	
Do. ...	Ularring ...	178·40		47·90		157·32		84·03		425·43		2,989·66	
Do. ...	Niagara ...	48·22	2,987·55	112·20	2,524·05	264·34	3,353·83	320·67	3,796·35	..	3,550·12	1,790·01	45,146 57
Do. ...	Yerilla ...	41·77		..		188·98		515·35		386·64		3,610·55	
Broad Arrow ...	...	..	1,920·52	..	1,961·01	..	1,287·46	..	2,464·60	..	2,297·00	..	22,215·92
N.E. Coolgardie ...	Kanowna ...	595·82	659·51	524·73	524·73	583·42	583·42	430·83	430·83	672·84	895·17	6,392·00	6,678·02
Do.	Kurnalpi ...	63·69		..		..		..		222·33		283·02	
East Coolgardie ...	East Coolgardie	46,393·48	46,477.99	46,270·02	46,378·80	48,051·96	48,158.43	48,860·70	48,860.70	46,671·71	46,671.71	578,183.41	579,344.34
Do. ...	Bulong ...	84·51		108·78		106·47		..		..		1,160·93	
Coolgardie ...	Coolgardie ...	865·02	916·95	500·42	982·01	490·45	609·22	1,377·34	1,607·43	964·57	1,566·28	8,768·13	13,618·32
Do. ...	Kunanalling	51·93		481·59		118·77		230·09		601·71		4,850·19	
Yilgarn	...	..	8,047·48	..	6,584·78	..	7,043·22	..	8,067·41	..	7,680·43	..	87,993·68
Dundas	...	..	1,578·13	..	1,333·85	..	1,510·33	..	1,648·85	..	2,017·21	..	21,594·78
Phillips River ...	...	..	178·34	..	294·02	..	299·12	..	2,263·33	..	188·31	..	5,418·97
State generally		..	21·28	..	151·86	..	18·43	..	..	..	..	..	618·78
TOTAL { Fine ounces ...		..	86,940·09	..	85,385·87	..	83,918·90	..	93,059·15	..	85,788·32	..	1,031,726.86
TOTAL { Sterling value		£369,298		£362,696		£356,465		£395,290		£364,406		£4,382,497	

TABLE II.

TOTAL YEARLY PRODUCTION OF GOLD, IN FINE OUNCES, AS REPORTED TO THE MINES DEPARTMENT, TO 31ST DECEMBER, 1916.

GOLDFIELD.	DISTRICT.	1916.		1915.		1914.		1913.		1912.		1911.	
		District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.
		ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
Kimberley	... ...	..	161·91	..	144·34	...	453·29	...	...	...	271·63	...	171·45
Pilbara	Marble Bar ...	3,515·58	5,881·60	6,462·36	8,541·97	3,304·94	5,177·46	3,845·81	5,598·21	3,441·44	5,999·11	2,346·74	4,608·08
Do.	Nullagine ...	2,366·02		2,079·61		1,872·52		1,752·40		2,557·67		2,261·34	
West Pilbara ...	... ...	..	608·84	...	1,507·02	...	1,022·70	...	1,421·15	...	1,118·20	...	983·17
Ashburton	... ...	..	..	...	...	...	...	...	11·70	...	38·73	...	256·33
Gascoyne	... ...	..	14·48	...	80·85	...	3·76	...	31·45	...	6·55	...	7·87
Peak Hill	... ...	..	2,389·29	...	2,823·13	...	2,602·62	...	2,765·59	...	1,861·64	...	1,747·01
East Mu chison ...	Lawlers	6,579·41		6,055·13		4,324·57		4,843·05		7,307·72		27,193·85	
Do.	Wiluna * ...	14,472·13	46,811·44	6,746·78	58,082·36	6,936·34	70,808·46	7,501·11	87,977·47	7,728·33	99,130·78	7,829·83	102,390·79
Do.	Black Range ...	25,759·90		45,280·45		59,547·55		75,633·31		84,094·73		67,367·11	
Murchison	Cue	6,011·29		6,185·89		4,491·02		6,525·65		8,993·26		11,455·56	
Do.	Meekatharra ...	51,322·56	84,422·89	73,834·57	108,049·78	80,400·07	115,722·42	72,701·81	122,027·56	50,558·20	105,372·78	54,241·79	119,653·40
Do.	Day Dawn ...	18,134·71		19,168·14		18,926·64		27,126·72		28,283·42		37,947·41	
Do.	Mt. Magnet ...	8,954·33		8,861·18		11,904·69		15,673·38		17,537·90		16,008·64	
Yalgoo	... ...	..	8,194·69	...	8,841·88	...	6,025·92	...	8,163·47	...	6,165·92	...	1,162·04
Mt. Margaret ...	Mt. Morgans ...	8,439·99		7,463·52		4,880·95		1,255·47		3,438·55		5,484·08	
Do.	Mt. Malcolm ...	57,541·13	100,612·34	63,995·64	106,563·01	66,071·07	96,792·51	72,738·73	91,272·70	74,288·81	102,969·60	92,811·29	152,474·39
Do.	Mt. Margaret ...	34,631·22		35,103·85		25,840·49		17,278·50		25,242·24		54,179·02	
North Coolgardie ...	Menzies	36,756·35		49,096·24		53,789·52		44,227·89		36,126·25		39,062·97	
Do.	Ularring ...	2,989·66		2,474·10		5,026·09		7,710·48		9,526·65		9,472·85	
Do.	Niagara	1,790·01	45,146·57	3,155·13	59,513·22	6,724·42	72,188·05	6,941·08	68,526·60	6,342·67	58,270·47	8,423·55	64,759·69
Do.	Yerilla	3,610·55		4,787·75		6,648·02		9,647·15		6,274·90		7,800·32	
Broad Arrow ...	... ...	..	22,215·92	...	22,290·03	...	9,285·98	...	34,739·33	...	13,375·43	...	7,152·73
N.E. Coolgardie ...	Kanowna ...	6,392·00		10,077·23		9,560·02		11,133·30		11,364·53		17,958·07	
Do.	Kurnalpi ...	286·02	6,678·02	783·75	10,860·98	574·08	10,134·10	1,259·58	12,392·88	2,491·18	13,855·71	1,596·68	19,554·75
East Coolgardie ...	East Coolgardie	578,183·41		668,913·16		680,494·61		719,323·42		755,368·56		775,050·60	
Do.	Bulong	1,160·93	579,344·34	1,875·08	670,788·24	2,400·80	682,895·41	605·30	719,928·72	1,426·58	756,795·14	1,443·14	776,493·74
Coolgardie	Coolgardie ...	8,768·13		11,990·23		17,009·37		28,407·27		37,246·77		28,982·04	
Do.	Kunanalling ...	4,850·19	13,618·32	6,324·54	18,314·77	3,972·08	20,981·45	3,484·22	31,891·49	4,934·82	42,181·59	4,771·67	33,753·71
Yilgarn	... ...	..	87,993·68	...	91,123·57	...	88,744·72	...	82,333·96	...	30,675·40	...	18,811·40
Dundas	... ...	..	21,594·78	...	23,884·18	...	26,590·76	...	27,039·47	...	25,314·35	...	28,989·86
Phillips River ...	... ...	..	5,418·97	...	3,816·76	...	4,665·42	...	2,788·47	...	4,201·36	...	5,656·54
† Donnybrook ...	... ...	..	..	...	...	...	...	...	...	...	...	...	...
State generally ...	... ...	..	618·78	...	272·59	...	144·16	...	178·60	...	240·40	...	359·99
TOTAL	Fine Ounces ...	..	1,031,726·86	...	1,195,498·68	...	1,214,239·19	...	1,299,088·82	...	1,267,844·79	...	1,338,986·94
	Sterling Value		4,382,497		£5,078,156		£5,157,760		£5,518,179		£5,385,462		£5,687,655

* Previous to 1st March, 1910, included in Lawlers District. † Abolished 4th March, 1908.

TABLE II.—*Total Yearly Production of Gold, in Fine Ounces, etc.*—continued.

GOLDFIELD.	DISTRICT.	1910.		1909.		1908.		1907.		PREVIOUS TO 1907.		TOTAL TO DECEMBER 31, 1916.	
		District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.	District.	Goldfield.
		ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
Kimberley	... ...	...	265·53	...	134·52	...	150·16	...	336·57	..	15,682·89	..	17,772·29
Pilbara	Marble Bar ...	2,613·40	5,369·94	2,523·16	6,764·49	3,179·76	6,965·61	5,856·44	10,042·96	80,222·57	127,164·02	117,312·20	192,113·45
Do.	Nullagine ...	2,756·54		4,241·33		3,785·85		4,186·52		46,941·45		74,801·25	
West Pilbara ...	... ...	...	1,483·62	...	1,539·62	...	1,005·60	...	464·08	..	16,007·69	..	27,161·69
Ashburton	... ...	...	247·63	...	436·32	...	161·71	...	143·01	..	7,581·31	..	8,876·74
Gascoyne	... ...	...	26·31	...	...	...	...	...	...	..	505·27	..	676·54
Peak Hill	... ...	...	4,327·02	...	7,918·79	...	7,980·10	...	8,111·14	..	206,367·84	..	248,894·17
East Murchison ...	Lawlers	45,203·50		77,542·23		72,109·75		61,259·79		581,104·59		893,523·61	
Do.	Wiluna	14,258·17	130,371·21	*	155,908·60	*	144,792·31	*	119,207·31	*	645,491·39	65,472·69	1,660,972·12
Do.	Black Range ...	70,909·54		78,366·37		72,682·56		57,947·52		64,386·80		701,975·82	
Murchison	Cue	9,576·29		21,271·13		24,702·50		25,878·80		212,855·29		337,946·68	
Do.	Meekatharra ...	50,046·60	124,351·38	50,992·21	133,105·86	38,820·52	157,848·40	31,792·41	169,397·46	209,399·13	1,520,725·04	764,109·87	2,760,676·97
Do.	Day Dawn ...	46,474·13		44,447·89		84,422·44		101,591·06		847,692·96		1,274,215·52	
Do.	Mt. Magnet ...	18,254·36		16,394·63		9,902·94		10,135·19		250,777·66		384,404·90	
Yalgoo	... ...	...	1,332·72	...	1,805·31	...	551·03	...	4,371·38	..	59,962·11	..	106,576·47
Mt. Margaret ...	Mt. Morgans ...	10,331·24		25,722·76		28,912·13		28,755·18		367,678·70		492,362·57	
Do.	Mt. Malcolm ...	97,689·68	160,281·18	90,436·33	155,864·99	86,018·61	153,597·15	81,709·00	169,466·07	664,523·89	1,343,526·85	1,447,824·18	2,633,420·79
Do.	Mt. Margaret ...	52,260·26		39,705·90		38,666·41		59,001·89		311,324·26		693,234·04	
North Coolgardie ...	Menzies	40,247·69		35,851·38		37,023·37		37,053·24		486,176·64		895,411·54	
Do.	Ularring... ...	8,669·96	72,747·55	15,286·66	79,398·99	21,598·97	91,251·59	19,072·73	86,790·67	179,312·47	1,172,412·10	281,140·62	1,871,005·50
Do.	Niagara	12,007·07		17,061·87		21,477·90		18,881·94		395,728·41		498,534·05	
Do.	Yerilla	11,822·83		11,199·08		11,151·35		11,782·76		111,194·58		195,919·29	
Broad Arrow ...	... ...	...	15,481·88	...	17,121·70	...	18,429·97	...	21,907·18	..	265,210·30	..	447,210·45
N.E. Coolgardie ...	Kanowna ...	22,203·96	23,027·27	23,785·63	25,462·38	26,355·22	27,072·72	29,244·99	31,197·96	507,330·09	523,897·60	675,405·04	704,134·37
Do.	Kurnalpi ...	823·31		1,676·75		717·50		1,952·97		16,567·51		28,729·33	
East Coolgardie ...	East Coolgardie	777,893·88	778,479·54	896,900·15	899,289·27	888,415·37	890,772·70	937,238·61	941,170·94	8,178,615·83	8,321,383·62	15,856,397·60	16,017,341·66
Do.	Bulong	585·66		2,389·12		2,357·33		3,932·33		142,767·79		160,944·06	
Coolgardie	Coolgardie ...	31,928·00	37,911·04	28,382·62	34,134·90	32,820·61	40,029·39	53,029·44	60,810·37	677,152·40	824,084·13	955,716·88	1,157,711·16
Do.	Kunanalling ...	5,983·04		5,752·28		7,208·78		7,780·93		146,931·73		201,994·28	
Yilgarn	... ...	...	27,857·93	...	20,909·12	...	22,162·57	...	19,291·98	..	268,061·79	..	757,966·42
Dundas	... ...	...	29,627·34	...	29,549·27	...	28,643·63	...	23,602·23	..	295,618·78	..	560,454·65
Phillips River ...	... ...	...	8,194·90	...	6,713·52	...	4,404·69	...	4,313·87	..	24,554·36	..	74,728·86
†Donnybrook ...	... ...	...	...	...	...	...	...	...	...	..	841·76	..	841·76
State generally	...	...	847·41	...	348·09	...	271·13	...	1,367·70	..	2,705·01	..	7,353·86
TOTAL	Fine Ounces ...	...	1,422,231·40	...	1,576,405·74	...	1,596,090·76	...	1,671,992·88	..	15,641,783·86	..	29,255,889·92
	Sterling Value	£6,041,254		£6,696,146		£6,779,763		£7,102,174		£66,442,075		£124,271,121	

* Previous to March, 1910, included in Lawlers District.

† Abolished 4th March, 1908.

TABLE III.

GENERAL RETURN.

RETURN SHOWING, FOR THE RESPECTIVE GOLDFIELDS AND DISTRICTS, THE AREA IN SQUARE MILES, LEASES IN FORCE, PARTICULARS OF PLANT, MEN EMPLOYED AND DIGGERS, ALLUVIAL, DOLLIED, AND SPECIMEN GOLD AND ORE TREATED, WITH GOLD AND SILVER YIELD, IN FINE OUNCES, AS REPORTED TO THE MINES DEPARTMENT, FOR THE YEAR 1916.

GOLDFIELD.	DISTRICT.	DATE OF PROCLAMATION OF GOLDFIELD.				AREA IN SQUARE MILES.		LEASES IN FORCE.		PARTICULARS OF PLANT.					AVERAGE NUMBER OF MEN ENGAGED IN GOLD MINING.		
										Milling.		Cyaniding.			Men employed.		
		Proclamation gazetted.	To take effect from	Latest Amendment of Boundaries gazetted.	To take effect from	Goldfield.	District.	No.	Area in Acres.	Stamps.	Other Mills.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	Above Ground.	Under Ground.	Diggers
Kimberley	...	20-5-86	20-5-86	31-10-02	1-11-02	33,833	...	...	...	...	...	...	...	...	...	...	12
Pilbara	Marble Bar	1-10-88	1-10-88	1-3-07	1-3-07	32,696	25,809	18	169	63	...	13	3	...	23	33	8
	Nullagine						6,887	10	90	28	2	13	...	...	50	26	18
West Pilbara	...	20 9-95	1-11-95	1-3-07	1-3-07	10,843	...	3	42	40	...	2	...	...	7	6	10
Ashburton	...	11-12-90	11-12-90	18-10-01	14-10-01	14,230	...	...	...	...	...	...	...	...	1	2	4
Gascoyne	...	25-6-97	15-4-97	18-10-01	14-10-01	5,313	. .	2	16	1	...	...	...	...	2	...	4
Peak Hill	...	19-3-97	1-4-97	13-11-14	1-12-14	23,650	...	14	144	40	2	13	3	...	10	10	3
East Murchison	Lawlers	28-6-95	28-6-95	1-11-12	1-1-13	28,746	9,379	29	339	108	2	47	...	...	71	73	1
	Wiluna						10,496	27	437	85	17	26	26	9	56	67	...
	Black Range						8,871	44	597	140	15	55	10	4	116	155	...
Murchison	Cue	24-9-91	24-9-91	28-11-13	1-1-14	25,474	8,593	29	323	85	2	15	1	...	56	56	7
	Meekatharra						12,250	80	1,052	122	22	44	16	5	230	304	11
	Day Dawn						896	40	428	65	16	22	17	26	93	131	14
	Mt. Magnet						3,735	35	321	50	6	24	...	1	118	96	9
Yalgoo	...	8-2-95	23-1-95	30-7-15	9-8-15	23,230	...	59	917	73	9	19	8	...	135	143	...
Mt. Margaret	Mt. Morgans	12-3-97	1-4-97	1-3-07	1-3-07	44,860	1,637	9	167	55	3	16	2	1	58	58	...
	Mt. Malcolm						3,330	66	1,287	127	19	8	16	4	207	281	5
	Mt. Margaret						39,893	65	1,074	70	19	19	12	3	172	171	7
North Coolgardie	Menzies	28-6-95	28-6-95	10-10-13	1-11-13	26,116	6,805	49	752	90	23	75	6	2	152	216	5
	Ularring						3,093	23	250	40	5	22	...	...	42	46	2
	Niagara						688	11	155	60	6	31	...	2	35	51	12
	Yerilla						15,530	24	356	50	9	23	...	1	72	102	9
Broad Arrow	...	17-11-96	20-11-96	8-6-06	1-7-06	1,038	...	39	591	45	16	15	5	2	92	144	46
North-East Coolgardie	Kanowna	20-3-96	15-4-96	27-3-08	1-4-08	20,604	1,094	34	512	138	8	66	...	...	55	76	21
	Kurnalpi						19,510	4	38	5	1	...	...	...	14	11	10
East Coolgardie	East Coolgardie	21-9-94	1-10-94	27-3-08	1-4-08	1,800	810	153	2,186	545	313	190	174	114	1,772	2,250	14
	Bulong						990	7	120	40	1	14	...	...	18	21	6
Coolgardie	Coolgardie	6-4-94	6-4-94	1-3-07	1-3-07	11,702	9,384	44	517	249	15	68	...	2	127	91	13
	Kunanalling						2,318	19	239	85	5	35	...	...	48	31	10
Yilgarn	...	1-10-88	1-10-88	28-1-16	1-2-16	17,700	...	153	2,985	177	27	81	9	6	347	500	...
Dundas	...	31-8-93	31-8-93	1-3-07	1-3-07	11,430	...	38	465	105	19	55	10	2	85	111	...
Phillips River	...	21-9-00	14-9-00	28-1-16	1-2-16	5,078	...	11	176	45	4	4	...	...	15	22	...
State generally	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...
	Total	...	...	...	...	**338,343**	...	**1,139**	**16,745**	**2,826**	**588**	**1,015**	**318**	**184**	**4,279**	**5,284**	**261**

TABLE III.—*Return showing for the respective Goldfields and Districts, etc.*—continued.

Goldfield.	District.	1916 GOLD AND SILVER YIELD—DISTRICTS.						1916 GOLD AND SILVER YIELD—GOLDFIELDS.					
		Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Total Gold.	* Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Total Gold.	* Silver.
		Fine ozs.	Fine ozs.	Tons (2,240lbs.).	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.).	Fine ozs.	Fine ozs.	Fine ozs.
Kimberley ..	.. ..	..	..	..	..	..	..	161·91	..	..	..	161·91	..
Pilbara	Marble Bar ..	207·72	..	1,946·60	3,307·86	3,515·58	..	307·03	..	3,335·60	5,574·57	5,881·60	..
Do.	Nullagine ..	99·31	..	1,389·00	2,266·71	2,366·02	..						
West Pilbara ..	.. ..	..	..	..	..	..	..	61·15	..	689·00	547·69	608·84	903·30
Ashburton	.. ..	..	..	..	..	..	..	..	..	..	..	..	1,244·47
Gascoyne	.. ..	..	..	..	..	..	..	..	..	36·00	14·48	14·48	..
Peak Hill	.. ..	..	..	..	..	..	..	44·10	48·87	1,803·50	2,296·32	2,389·29	..
East Murchison ..	Lawlers ..	6·11	367·64	12,194·55	6,205·66	6,579·41	292·23						
Do. ..	Wiluna ..	..	..	20,567·25	14,472·13	14,472·13	87·81	17·60	898·03	69,414·80	45,895·81	46,811·44	2,202·06
Do.	Black Range	11·49	530·39	36,653·00	25,218·02	25·759·90	1,822·02						
Murchison	Cue	4·71	53·49	8,583·00	5,953·09	6,011·29	..						
Do. ..	Meekatharra..	194·36	146·54	77,884·69	50,981·66	51,322·56	250·11						
Do.	Day Dawn ..	..	142·14	35,798·98	17,992·57	18,134·71	2,488·57	228·76	1,324·19	139,156·65	82,869·94	84,422·89	2,780·43
Do.	Mt. Magnet ..	29·69	982·02	16,889·98	7,942·62	8,954·33	41·75						
Yalgoo	.. ..	..	..	..	..	..	..	9·49	141·31	15,675·75	8,043·89	8,194·69	73·86
Mt. Margaret ..	Mt. Morgans..	..	85·25	36,219·08	8,354·74	8,439·99	..						
Do. ..	Mt. Malcolm..	19·84	85·61	142,703·75	57,435·68	57,541·13	4,702·54	51·40	674·45	265,815·08	99,886·49	100,612·34	8,623·01
Do. ..	Mt. Margaret	31·56	503·59	86,892·25	34,096·07	34,631·22	3,920·47						
North Coolgardie ..	Menzies ..	9·65	8·22	54,385·74	36,738·48	36,756·35	1,452·06						
Do. ..	Ularring ..	..	25·43	5,369·40	2,964·23	2,989·66	104·80						
Do. ..	Niagara ..	20·24	..	1,877·09	1,769·77	1,790·01	..	37·48	33·65	64,787·73	45,075·44	45,146·57	1,556·86
Do. ..	Yerilla ..	7·59	..	3,155·50	3,602·96	3,610·55	..						
Broad Arrow ..	.. ..	..	..	..	..	..	..	73·70	1,988·77	45,822·69	20,153·45	22,215·92	..
N.E. Coolgardie ..	Kanowna ..	..	18·16	10,459·00	6,373·84	6,392·00	..						
Do.	Kurnalpi ..	..	73·04	2·00	212·98	286·02	..	..	91·20	10,461·00	6,586·82	6,678·02	..
East Coolgardie ..	E. Coolgardie	353·76	1,729·68	1,311,108·56	576,099·97	578,183·41	95,157·07						
Do. ..	Bulong ..	..	60·59	4,144·50	1,100·34	1,160·93	12·92	353·76	1,790·27	1,315,253·06	577,200·31	579,344·34	95,169·99
Coolgardie	Coolgardie ..	126·48	823·46	11,847·15	7,818·19	8,768·13	114·17						
Do. ..	Kunanalling..	20·02	16·74	5,526·00	4,813·43	4,850·19	..	146·50	840·20	17,373·15	12,631·62	13,618·32	114·17
Yilgarn	.. ..	..	..	..	..	..	..	..	63·41	181,949·53	87,930·27	87,993·68	4,601·80
Dundas	.. ..	..	..	..	..	..	..	..	664·35	38,571·00	20,930·43	21,594·78	6·48
Phillips River ..	.. ..	..	..	..	..	..	..	..	..	2,629·58	5,418·97	5,418·97	360·11
State generally ..		..	..	..	..	..	..	..	..	..	618·78	618·78	1,040·59
Total for 1916 ..		..	..	..	..	..	..	**1,492·88**	**8,553·70**	**2,172,774·12**	**1,021,675·28**	**1,031,726·86**	**118,677·13**

*By-product in the treatment of auriferous ore, except Ashburton and State generally.

TABLE III.—*Return showing for the respective Goldfields and Districts, etc.*—continued.

Goldfield.	District.	Total Gold and Silver Yield—Districts.						Total Gold and Silver Yield—Goldfields.					
		Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Total Gold.	* Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Total Gold.	* Silver.
		Fine ozs.	Fine ozs.	Tons (2,240lbs.).	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.).	Fine ozs.	Fine ozs.	Fine ozs.
Kimberley ..	.. ..	..	..	..	..	..	..	3,645·04	..	17,597·50	14,127·25	17,772·29	..
Pilbara	Marble Bar ..	11,679·75	3,278·85	67,919·18	102,353·60	117,312·20	574·01	17,854·22	3,654·24	107,105·42	170,604·99	192,113·45	574·01
Do.	Nullagine ..	6,174·47	375·39	39,186·24	68,251·39	74,801·25	..						
West Pilbara ..	.. ..	..	..	..	..	..	..	5,466·49	262·10	18,496·71	21,433·10	27,161·69	1,218·24
Ashburton	.. ..	..	..	..	..	..	..	8,561·10	315·64	..	..	8,876·74	7,787·69
Gascoyne	.. ..	..	..	..	..	..	..	320·20	18·51	356·70	337·83	676·54	..
Peak Hill	.. ..	..	..	..	..	..	..	1,870·86	3,919·09	481,490·76	243,104·22	248,894·17	2,287·59
East Murchison ..	Lawlers ..	5,614·49	6,724·62	1,975,050·12	881,184·50	893,523·61	25,112·72						
Do. ..	Wiluna ..	90·79	197·27	128,103·75	65,184·63	65,472·69	232·00	7,157·41	21,472·71	3,181,812·08	1,632,342·00	1,660,972·12	40,092·32
Do.	Black Range	1,452·13	14,550·82	1,078,658·21	685,972·87	701,975·82	14,747·60						
Murchison	Cue	997·50	4,313·04	381,415·30	332,636·14	337,946·68	400·11						
Do. ..	Meekatharra..	9,978·91	9,557·51	1,067,342·94	744,573·45	764,109·87	4,759·67						
Do.	Day Dawn ..	2,285·32	5,923·14	1,904,892·56	1,266,007·06	1,274,215·52	165,474·43	15,009·24	33,120·85	3,872,494·97	2,712,546·88	2,760,676·97	171,808·39
Do.	Mt. Magnet ..	1,747·51	13,327·16	518,844·17	369,330·23	384,404·90	1,174·18						
Yalgoo	.. ..	..	..	..	..	..	..	1,320·41	1,723·41	159,461·89	103,532·65	106,576·47	167·40
Mt. Margaret ..	Mt. Morgans ..	1,716·26	3,469·94	871,144·74	487,176·37	492,362·57	5,758·43						
Do. ..	Mt. Malcolm..	2,444·82	6,803·29	2,696,136·13	1,438,576·07	1,447,824·18	59,327·44	7,355·52	16,110·76	4,844,462·25	2,609,954·51	2,633,420·79	103,893·93
Do. ..	Mt. Margaret	3,194·44	5,837·53	1,277,181·38	684,202·07	693,234·04	38,808·06						
North Coolgardie ..	Menzies ..	981·73	2,873·07	1,017,621·51	891,556·74	895,411·54	15,666·35						
Do. ..	Ularring ..	21·46	1,142·11	281,458·14	279,977·05	281,140·62	5,537·71						
Do. ..	Niagara ..	1,466·08	1,329·02	894,094·13	495,738·95	498,534·05	5,603·42	3,715·61	12,912·19	2,405,859·20	1,854,377·70	1,871,005·50	26,870·52
Do. ..	Yerilla ..	1,246·34	7,567·99	212,685·42	187,104·96	195,919·29	63·04						
Broad Arrow ..	.. ..	..	..	..	..	..	..	18,918·67	7,576·70	773,467·88	420,715·08	447,210·45	2,181·96
N.E. Coolgardie ..	Kanowna ..	104,343·79	10,761·72	910,926·13	560,299·53	675,405·04	2,522·12						
Do.	Kurnalpi ..	11,984·88	4,600·48	5,081·21	12,143·97	28,729·33	11·22	116,328·67	15,362·20	916,007·34	572,443·50	704,134·37	2,533·34
East Coolgardie ..	E. Coolgardie	26,733·52	28,714·76	24,212,787·25	15,800,949·32	15,856,397·60	1,345,250·43						
Do. ..	Bulong ..	26,504·15	14,906·15	153,957·92	119,533·76	160,944·06	12·92	53,237·67	43,620·91	24,366,745·17	15,920,483·08	16,017,341·66	1,345,263·35
Coolgardie	Coolgardie ..	8,482·12	9,662·86	1,478,464·56	937,571·90	955,716·88	881·79						
Do. ..	Kunanalling..	605·51	4,969·19	258,569·47	196,419·58	201,994·28	48·67	9,087·63	14,632·05	1,737,034·03	1,133,991·48	1,157,711·16	930·46
Yilgarn	.. ..	..	..	..	..	..	..	89·88	1,394·70	1,652,337·97	756,481·84	757,966·42	20,886·86
Dundas	.. ..	..	..	..	..	..	..	2,027·12	9,929·50	797,707·55	548,498·03	560,454·65	34,954·70
Phillips River ..	.. ..	..	..	..	..	..	..	472·20	775·33	81,826·62	73,481·33	74,728·86	15,688·17
† Donnybrook ..	.. ..	..	..	..	..	..	..	23·24	..	1,653·30	818·52	841·76	..
State generally ..		..	..	..	..	..	..	124·89	155·90	27·00	7,073·07	7,353·86	9,592·16
Total to 31-12-1916 ..		..	..	..	..	..	..	**272,586·07**	**186,956·79**	**45,415,944·34**	**28,796,347·06**	**29,255,889·92**	**1,786,731·09**

* By-product in the treatment of auriferous ore except Ashburton and State generally.

† Abolished 4th March, 1908.

TABLE IV.

PRODUCTION OF GOLD AND SILVER FROM ALL SOURCES, SHOWING IN FINE OUNCES THE OUTPUT AS REPORTED TO THE MINES DEPARTMENT DURING 1916, AND THE TOTAL PRODUCTION TO DATE.

Kimberley Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Hall's Creek ..	..	Voided leases	..	..	..	..	..	..	..	423·00	477·76	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	94·55	62·68	..
Mt. Dockrell..	..	Voided leases	..	..	..	..	..	..	..	44·00	435·93	..
Ruby Creek	..	Voided leases	..	..	..	..	..	..	..	12,633·50	9,435·13	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	151·00	127·28	..
The Brockman	..	Voided leases	..	..	..	..	..	..	..	1,352·75	1,404·40	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	2,462·00	1,820·33	..
The Mary ..	..	Voided leases	..	..	..	..	..	..	..	399·00	210·03	..
The Panton ..	..	Voided leases	..	..	..	..	..	..	..	34·70	138·70	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	3·00	15·01	..
		From Goldfield generally :—										
		Reported by Banks and Gold Dealers	161·91	..	..	..	..	3,645·04	..	..	..	..
		Total	**161·91**	..	..	..	..	**3,645·04**	..	**17,597·50**	**14,127·25**	..

Pilbara Goldfield.

MARBLE BAR DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Bamboo Creek	733	Bamboo Queen	..	..	99·00	177·22	..	..	..	418·25	718·57	..
Do. ..	777	Blue Bell	..	..	77·00	39·03	..	..	..	327·75	220·25	..
Do. ..	732	Bonnie Doon	..	..	135·00	97·41	..	..	..	944·75	683·59	..

Do.	(712)	Bonnie Dundee	..	..	..	..	..	..	..	98·75	77·83	..
Do.	(748)	Federation	..	..	..	..	..	..	..	332·75	351·57	..
Do.	707	Kitchener	..	..	434·00	729·63	..	..	..	1,458·25	3,089·63	..
Do.	740	Mount Prophecy	..	..	177·00	510·58	..	..	1·11	585·00	809·42	..
Do.	794	Perseverance	..	..	57·00	78·78	..	..	..	57·00	78·78	..
Do.	789	Princess May and Charlie	..	..	10·00	23·40	..	..	..	28·00	64·60	..
Do.	796	True Bill	..	..	8·50	8·77	..	..	..	8·50	8·77	..
Do.	(782)	Wagtail	..	..	8·00	10·88	..	..	..	205·25	187·16	..
Do.		Voided leases	..	..	..	..	..	..	454·61	12,101·75	20,375·05	..
Do.		Sundry claims	..	..	93·10	46·01	..	..	307·83	706·60	892·57	..
Boodalyerrie		Voided leases	..	..	..	..	..	..	292·07	120·25	587·86	..
Do.		Sundry claims	..	..	..	..	..	..	7·16	..	..	..
Breen's Find		Voided leases	..	..	..	..	..	..	..	14·00	66·82	..
Elsie	792	Trio	..	..	6·00	7·50	..	..	..	33·00	28·69	..
Do.		Voided leases	..	..	..	..	..	..	..	135·00	316·31	..
Do.		Sundry claims	..	..	..	..	..	..	..	2·75	9·22	..
Lalla Rookh		Voided leases	..	..	..	..	..	..	..	224·50	2,186·65	574·01
Do.		Sundry claims	..	..	150·00	499·12	..	..	..	6,908·00	6,806·72	..
Marble Bar	(781)	Come Again	..	..	25·00	20·60	..	..	..	38·00	27·73	..
Do.	(785)	Franklin	..	..	..	..	..	..	..	15·00	17·66	..
Do.	(768)	Homeward Bound	..	..	8·50	5·73	..	..	6·17	222·50	221·27	..
Do.	694	Jo-Jo	..	..	142·50	164·78	..	..	..	1,829·00	1,930·65	..
Do.	(793)	Jo-Jo North	..	..	..	..	..	..	..	9·00	6·59	..
Do.	790	Rufus Henry	..	..	68·50	133·40	..	..	..	162·50	510·16	..
Do.	762	True Blue	..	..	28·00	60·62	..	..	..	174·75	302·59	..
Do.	722	Viking	..	..	133·00	151·12	..	..	..	1,191·00	1,180·47	..
Do.	(780)	Yorkshire Lass	..	..	..	..	..	..	..	226·25	267·53	..
Do.		Voided leases	..	..	..	..	..	..	141·73	15,231·45	20,213·51	..
Do.		Sundry claims	..	..	128·00	176·64	..	38·68	146·79	3,943·14	4,431·59	..
North Pole		Voided leases	..	..	..	..	..	..	..	474·00	340·75	..
Do.		Sundry claims	..	..	37·50	52·57	..	..	..	50·50	69·56	..
North Shaw		Voided leases	..	..	..	..	..	7·53	..	351·45	674·72	..
Do.		Sundry claims	..	..	..	..	..	..	567·06	..	..	..
Sharks		Sundry claims	..	..	..	..	..	145·08	19·37	24·50	93·14	..
Shaw River		Voided leases	..	..	..	..	..	..	..	101·00	49·63	..
Talga Talga		Voided leases	..	..	..	..	..	..	83·83	574·50	975·98	..
Do.		Sundry claims	..	..	..	..	..	50·26	68·99	204·65	520·25	..
Tambourah		Voided leases	..	..	..	..	..	..	..	1,438·50	1,739·44	..
Do.		Sundry claims	..	..	..	..	..	..	79·29	639·25	797·44	..
Warrawoona		Voided leases	..	..	..	..	..	..	16·99	10,072·80	18,136·84	..
Do.		Sundry claims	..	..	..	..	..	44·30	362·50	1,127·04	2,163·74	..
Western Shaw		Voided leases	..	..	..	..	..	..	..	1,222·50	957·80	..
Do.		Sundry claims	..	..	..	..	..	12·52	67·47	..	..	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Pilbara Goldfield—*continued.*

MARBLE BAR DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Wyman's Well	744	Euro	..	..	110·00	91·70	..	..	..	340·00	352·55	..
Do. ..	..	Voided leases	..	..	..	..	..	..	33·55	115·04	493·98	..
Do. ..	..	Sundry claims	..	..	11·00	12·42	..	..	16·72	355·86	592·18	..
Yandicoogina	(724)	Thelma	..	..	..	..	..	..	..	68·70	226·24	..
Do. ..	..	Voided leases	..	..	..	..	..	..	140·76	2,664·50	5,597·99	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	238·35	103·75	120·34	..
		From District generally:—										
		Sundry Parcels treated at:										
		State Battery—Bamboo Creek	..	..	..	209·95	..	..	..	..	542·25	..
		State Battery—Marble Bar	..	..	..	..	..	..	..	..	34·06	..
		Various Works	..	..	..	..	..	..	..	237·95	1,204 91	..
		Reported by Banks and Gold Dealers	207·72	..	..	..	..	11,381·38	226·50	..	..	..
		Total	**207·72**	..	**1,946·60**	**3,307·86**	..	**11,769·75**	**3,278·85**	**67,919·18**	**132,353·6**	**574·01**

NULLAGINE DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Eastern Creek	180L	Crescent	..	..	127·00	238·41	..	..	..	860·75	1,480·03	..
Do. ..	176L	(Doherty Reward)	..	..	..	..	..	..	..	142·25	171·43	..
Do. ..	176L	Doherty Reward	..	..	350·00	538·44	..	..	..	1,175·00	1,690·81	..
Do. ..	176L (177L) ..	(Doherty Reward leases) ..	..	..	..	..	..	..	..	219·00	1,007·68	..
Do. ..	203L	Harp	..	..	63·00	129·58	..	..	..	233·00	515·20	..
Do. ..	182L	Morning Star	..	..	..	..	..	..	4·19	367·00	834·03	..
Do. ..	205L	Rose	..	..	..	..	..	..	..	86·00	86·66	..
Do. ..	178L	Shamrock	..	..	45·00	92·59	..	..	4·00	395·25	683·06	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	267·50	214·00	..
Do. ..	..	Sundry claims	..	..	10·00	6·70	..	..	3·77	295·00	515·62	..

Elsie	..	Voided leases	..	..	..	..	..	..	..	408·25	1,323·85	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	24·00	27·48	..
McPhee's Creek	..	Voided leases	..	..	..	..	..	..	..	113·00	137·92	..
Middle Creek	106L	Barton	..	..	..	297·54	..	..	..	5,627·65	7,300·00	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	559·25	1,109·67	..
Do. ..	..	Sundry claims	..	..	37·00	34·77	..	..	..	201·00	297·05	..
Mosquito Creek	..	Voided leases	..	..	..	..	..	1·07	21·42	7,259·80	12,464·00	..
Do. ..	..	Sundry claims	..	..	34·00	31·84	..	..	166·47	2,188·94	3,116·77	..
Nullagine ..	..	Voided leases	..	..	..	..	..	..	13·96	7,453·25	11,335·12	..
Do. ..	..	Sundry claims	..	..	3·00	22·81	..	104·70	102·29	3,911·75	8,347·16	..
Twenty-mile Sandy	195L	Billjim	..	..	530·00	586·68	..	..	..	2,000·00	1,776·79	..
Do. ..	136L	Little Wonder	..	..	..	..	..	..	..	1,050·00	3,859·26	..
Do. ..	(207L)	Wonder West	..	..	7·50	14·05	..	..	3·20	215·50	204·25	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	1,347·70	1,651·72	..
Do. ..	..	Sundry claims	..	..	120·50	61·12	..	33·10	20·55	2,672·90	3,653·47	..
		From District generally :—										
		Sundry Parcels treated at :										
		Doherty's Works	..	..	..	..	..	..	..	..	493·13	..
		State Battery—Twenty-mile Sandy	..	..	62·00	212·18	..	..	..	62·00	1,313·56	..
		Various Works	..	..	..	..	..	..	..	50·50	2,641·67	..
		Reported by Banks and Gold Dealers	99·31	..	..	..	..	6,035·60	35·54	..	..	..
		Total	**99·31**	..	**1,389·00**	**2,266·71**	..	**6,174·47**	**375·39**	**39,186·24**	**68,251·39**	..

West Pilbara Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Croydon ..	..	Voided leases	..	..	..	..	..	..	..	8·00	5·44	..
Hong Kong ..	..	Voided leases	..	..	..	..	..	..	..	331·00	442·45	..
Do. ..	..	Sundry claims	..	..	..	..	..	21·40	·02	9·00	3·15	..
Lower Nicol ..	..	Voided leases	..	..	..	..	..	..	1·10	653·20	402·22	..
Do. ..	..	Sundry claims	..	..	..	..	..	10·44	2·71	10·00	11·51	..
Mallina ..	..	Voided leases	..	..	..	..	..	..	..	141·60	128·44	..
Nicol ..	..	Voided leases	..	..	..	..	..	..	..	30·00	11·47	..
Pilbara ..	..	Voided leases	..	..	..	..	..	..	48·12	148·00	293·42	..
Do. ..	..	Sundry claims	..	..	25·00	34·50	..	1·11	86·24	68·00	101·06	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

West Pilbara Goldfield—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Roebourne ..	M.L. 174 ..	Good Fortune	..	..	..	*·41	..	..	..	..	·41	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	113·36	573·91	237·91
Do. ..	..	Sundry claims	..	..	..	*5·15	*19·50	..	..	108·60	93·85	96·53
Station Peak	165	Belladonna	..	..	543·00	150·88	..	..	17·93	543·00	150·88	..
Do. ..	..	Voided leases	..	..	..	..	..	177·74	23·44	9,993·00	11,084·49	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	37·50	48·19	..
Towranna ..	155	Tauri Tom Tit	..	..	121·00	356·75	..	..	..	1,861·00	2,842·29	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	1,934·80	2,088·26	..
Upper Nicol ..	..	Sundry claims	..	..	..	..	..	..	..	6·50	2·57	..
Werrianna ..	(160)	Mount Veale	..	..	..	..	..	..	..	47·90	53·39	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	2,388·25	3,026·42	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	64·00	62·90	..
Whim Creek ..	M.L. 172 ..	Cumstock	..	..	..	..	†883·80	..	..	..	..	883·80
		From Goldfield generally :—										
		Reported by Banks and Gold Dealers	61·15	..	..	..	..	5,255·80	82·54	..	6·38	..
		Total	**61·15**	..	**689·00**	**547·69**	**903·30**	**5,466·49**	**262·10**	**18,496·71**	**21,433·10**	**1,218·24**

* From Copper Ore. † From Silver Lead Ore.

Ashburton Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Mt. Mortimer	..	Sundry claims	..	..	..	..	74·47	354·37	315·64	..	..	74·47
Uaroo ..	M.L. 43, M.L. 49	Uaroo Silver-Lead Mines, Ltd. ..	..	..	..	..	1,170·00	..	..	..	..	7,551·20
Do. ..	..	Voided leases	..	..	..	..	..	..	..	..	..	162·02
		From Goldfield generally :—										
		Reported by Banks and Gold Dealers	..	..	..	..	..	8,206·73	..	..	..	..
		Total	..	..	..	..	**1,244·47**	**8,561·10**	**315·64**	..	..	**7,787·69**

Gascoyne Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Bangemall ..	32	Gem	..	..	36·00	14·48	..	..	..	114·00	95·33	..
Do. ..	..	Voided leases	..	..	..	..	..	..	6·22	236·70	218·49	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	12·29	6·00	24·01	..
		From Goldfield generally :—										
		Reported by Banks and Gold Dealers	..	..	..	..	..	320·20	..	..	..	..
		Total	..	..	**36·00**	**14·48**	..	**320·20**	**18·51**	**353·70**	**337·83**	..

Peak Hill Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Egerton ..	460P	Dorothy	..	..	90·00	129·00	..	..	..	90·00	129·00	..
Do. ..	352P	Hibernian	..	..	614·00	252·82	..	..	..	2,251·00	1,138·30	..
Do. ..	..	Voided leases	..	..	..	..	..	..	·91	225·25	231·00	..
Do. ..	..	Sundry claims	..	..	131·00	54·71	..	..	23·51	1,036·75	482·86	..
Horseshoe ..	(445P)	Mahoney's New Brilliant ..	..	48·87	..	..	..	..	48·87	16·00	35·81	..
Do. ..	..	Voided leases	..	..	..	..	..	..	1,902·09	712·38	1,937·65	2·00
Do. ..	..	Sundry claims	..	..	..	..	..	..	632·37	16·05	45·14	..
Mt. Fraser ..	..	Voided leases	..	..	..	..	..	..	..	389·50	320·96	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	80·00	55·41	..
Peak Hill ..	459P	Atlantic	..	..	10·00	105·22	..	..	..	70·50	243·06	..
Do. ..	462P	Enterprise	..	..	57·00	266·47	..	..	..	57·00	266·47	..
Do. ..	448P	Evening Star	..	..	63·00	241·05	..	..	..	481·00	1,641·51	..
Do. ..	364P, [1261N] ..	Harder to Find	..	..	..	..	..	..	46·29	14·00	30·62	..
Do. ..	(457P)	International	..	..	28·00	33·76	..	..	..	28·00	33·76	..
Do. ..	(370P), ([1263N])	Lucky Call	..	..	..	..	..	..	..	23·00	42·94	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Peak Hill Goldfield—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Peak Hill ..	5P, 306P ..	No. 1 North leases	..	..	51·00	105·61	..	..	..	837·50	835·73	..
Do. ..	455P	North Star	..	..	60·00	29·90	..	..	..	91·00	90·72	..
Do. ..	(386P)	Pacific	..	..	..	..	..	..	4·57	166·00	188·85	..
Do. ..	461P	Patriotic	..	..	148·00	176·08	..	..	..	199·00	346·51	..
Do. ..	(1P), (2P), (4P), 5P, (6P), (8P), (9P), (13P), (15P), (16P), (26P), (27P), (28P), (29P), (35P), (36P), (43P), (53P), (54P), (63P), (146P), (152P), (190P), (213P), (222P), (239P), (248P), (252P), (262P), (274P), 306P, (313P)	(Peak Hill Goldfields, Ltd.)	..	..	..	..	..	..	191·46	462,057·01	223,273·59	2,285·59
Do. ..	456P	Reefers	..	..	31·00	43·55	..	..	..	118·00	126·57	..
Do. ..	398P	Temperance	..	..	48·00	169·02	..	..	6·65	559·00	465·66	..
Do. ..	..	Voided leases	..	..	..	..	..	..	470·68	4,569·62	3,745·54	..
Do. ..	..	Sundry claims	..	..	472·50	256·82	..	..	118·29	2,409·25	1,897·33	..
Ravelstone ..	..	Voided leases	..	..	..	..	..	..	101·64	4,219·85	3,117·68	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	553·60	283·17	..
Wilgeena ..	..	Voided leases	..	..	..	..	..	..	23·54	128·50	146·79	..
Wilthorpe ..	..	Voided leases	..	..	..	..	..	..	..	47·00	20·93	..
		From Goldfield generally:—										
		Sundry Parcels treated at:										
		State Battery—Egerton	..	..	..	294·87	..	..	..	..	294·87	..
		State Battery—Ravelstone	..	..	..	137·44	..	..	3·05	15·00	1,315·82	..
		Various Works	..	..	..	..	..	..	..	30·00	319·97	..
		Reported by Banks and Gold Dealers	44·10	..	..	..	..	1,870·86	345·17	..	..	..
		Total	**44·10**	**48·87**	**1,803·50**	**2,296·32**	**..**	**1,870·86**	**3,919·09**	**481,490·76**	**243,104·22**	**2,287·59**

East Murchison Goldfield.

LAWLERS DISTRICT.

Note.—From the 1st March, 1910, the Lawlers District was subdivided into Wiluna and Lawlers. The gold produced after that date by the mines at Wiluna will be found in the Wiluna District, and the lease numbers of both districts are shown in each case.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Bronzewing ..	..	Voided leases	..	..	..	..	..	..	..	468·00	318·03	1·94
Cork Tree ..	..	Voided leases	..	..	..	..	..	..	29·90	3,767·00	3,292·87	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	25·50	13·00	9·32	..
Kathleen Valley	382	(Yellow Aster)	..	..	..	..	..	..	..	37,605·00	27,051·42	..
Do. ..	382	Yellow Aster	..	..	685·00	334·82	..	..	..	685·00	334·82	..
Do. ..	382	(Yellow Aster: Yellow Aster G.M. Co., N.L.)	..	..	..	..	..	..	..	10,359·75	5,425·26	..
Do. ..	..	Voided leases	..	..	..	..	..	..	141·57	23,291·50	11,350·24	..
Do. ..	..	Sundry claims	..	..	29·00	51·02	..	..	478·40	1,429·75	855·82	..
Lake Darlot ..	(182)	Amazon	..	..	..	..	..	..	11·54	3,850·50	6,235·51	..
Do. ..	626	Filbandint	..	..	..	..	..	..	..	999·00	918·19	..
Do. ..	648	Monte Cristo	..	..	..	..	..	..	..	71·25	54·08	..
Do. ..	648, (654), (852)	(Monte Cristo leases)	..	..	..	..	..	..	..	6,762·60	3,279·52	..
Do. ..	1193	New Year's Gift	..	251·20	..	..	..	..	251·20	..	..	..
Do. ..	273	St. George	..	..	..	..	..	..	2,972·78	890·00	7,954·64	..
Do. ..	633	(Zangbar)	..	..	..	..	..	..	..	997·00	505·75	..
Do. ..	633, (823) ..	Zangbar leases	..	..	..	..	..	..	..	20,340 00	7,664·55	..
Do. ..	..	Voided leases	..	..	..	..	..	..	934·38	31,245 95	21,720·21	..
Do. ..	..	Sundry claims	..	..	..	711·30	..	1·16	474·45	3,794 64	3,302·72	..
Lawlers ..	(37), 58, 62, (70), (155), (156), (157), (158), (376), (377), (381), (385), (399), (426), (427), (459), (474), (500), (508), (509), (510), (511), (512), (552), (562), (563), (573), (811), (840)	(East Murchison United, Ltd.) ..	..	..	..	..	..	..	..	291,797 00	155,594·26	900·48
Do. ..	1171	(Great Eastern)	..	..	..	..	..	..	..	927·00	337·72	..
Do. ..	1171, 1186 ..	Great Eastern leases	..	..	705·00	427·29	..	..	..	850·00	648·90	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

East Murchison Goldfield—*continued.*

LAWLERS DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Lawlers ..	(1187)	Lady Bird	..	..	..	..	..	..	37·42	5·00	14·64	..
Do. ..	(37), 58, 62, (70), (155), (156), (157), (158), (376), (377), (381), (385), (399), (426), (427), (459), (474), (500), (508), (509), (510), (511), (512), (552), (562), (563), (573), (811), (840)	(London and Western Australian Exploration Co., Ltd.)	..	..	..	..	..	..	..	179,563·00	40,438·14	2,560·31
Do. ..	1163	(May Bee)	..	..	883·50	196·99	..	..	..	4,157·00	1,270·06	..
Do. ..	1163, 1189 ..	May Bee leases	..	..	19·00	39·71	..	..	..	19·00	39·71	..
Do. ..	(37), 58, 62, 70, (155), (156), (157), (158), (376), (377), (385), (459), (508), (509), (562), (563), (811), (840), 918, (1053), (1106), (1109), (1110), (1123), (1160)	(Northern Mines, Ltd.)	..	..	..	..	..	..	..	398,856·50	102,005·52	8,356·89
Do. ..	1172	Queen	..	..	556·00	546·21	23·89	..	..	1,466·50	1,729·63	47·61
Do. ..	(1191)	Return	..	96·19	8·00	35·83	..	..	96·19	8·00	35·83	..
Do. ..	910, 923	Sunrise leases	..	..	..	..	..	..	..	8,289·00	3,985·12	..
Do. ..	1188	Try It	..	..	579·00	174·62	..	..	..	579·00	174·62	..
Do. ..	58, 62, 918 ..	Waroonga G.M. Co., Ltd.	..	..	7,551·00	1,730·77	..	..	..	11,889·00	2,623·98	..
Do. ..	62, (562), (563 ..	(Waroonga South leases) ..	..	..	..	..	..	..	..	42,150·00	14,329·48	..
Do. ..	58	(Woronga: London and Western Australian Exploration Co., Ltd.)	..	..	..	..	..	..	..	2,438·50	2,755·45	..
Do. ..	..	Voided leases	..	..	..	..	..	..	450·98	284,127·48	146,891·08	1,794·21
Do. ..	..	Sundry claims	..	20·25	797·05	375·25	268·34	14·81	119·17	9,674·98	6,124·50	268·34
New England ..	..	Voided leases	..	..	..	..	..	..	57·54	899·00	720·25	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	4·32	554·50	465·23	..
Sir Samuel ..	1175	Bellevue North	..	..	..	..	..	..	4·45	53·75	37·46	..
Do. ..	1190	Bellevue South	..	..	116·00	45·60	..	..	..	156·00	114·46	..
Do. ..	1192	Isadore	..	..	157·00	126·19	..	..	..	157·00	126·19	..
Do. ..	..	Voided leases	..	..	..	..	..	..	9·04	264,965·75	138,192·35	10,225·58
Do. ..	..	Sundry claims	..	..	109·00	135·96	..	..	·37	3,282·00	2,528·32	..

Wiluna ..	(1137), ([118J]) ..	Aurora	..	..	..	..	..	..	..	..	8·00	46·38	..
Do. ..	(140), ([2J]), 162, [4J], (163), ([5J])	(Golden Age Consolidated, Ltd.) ..	..	..	..	..	..	..	..	..	42,521·00	19,750·45	..
Do. ..	542, [6J], 548, [7J], 550, [8J], (906), ([11J], (930), ([13J], (931), ([14J], (932), ([15J], (937), ([17J], (938), ([18J], (943), ([21J], (944), ([22J], (952), ([26J]	Gwalia Consolidated, Ltd.	..	..	..	..	..	..	..	..	210,230·32	74,536·14	69·03
Do. ..	162, [4J], (163), ([5J]	(Lake Way leases)	..	..	..	..	..	..	..	..	630·00	369·60	..
Do. ..	162, [4J] ..	(Lake Way: Western Australian Goldfields, Ltd.)	..	..	..	..	..	..	..	..	2,786·00	1,238·44	..
Do. ..	870, [10J] ..	(Moonlight)	..	..	..	..	..	..	..	..	1,856·00	787·66	..
Do. ..	917, [12J] ..	(Squib)	..	..	..	..	..	..	..	..	276·50	67·00	..
Do. ..	..	Voided leases	..	..	..	..	..	..	537·27	..	58,141·75	41,406·15	124·00
Do. ..	..	Sundry claims	..	..	..	..	..	5·30	..	..	2,841·15	1,516·76	..
	From District generally :—												
	Sundry Parcels treated at :												
	Cinderella Battery		..	..	..	151·34	..	..	..	..	1,218·00	3,297·53	26·00
	Great Eastern Battery		..	..	..	803·08	..	..	..	..	..	957·04	..
	Lawlers Public Battery		..	..	..	..	..	..	..	..	284·00	2,730·80	..
	Parry's Cyanide Plant		..	..	..	..	..	..	..	..	..	155·36	..
	State Battery—Lake Darlot		..	..	..	..	..	..	..	..	315·00	1,097·09	..
	State Battery—Sir Samuel		..	..	..	319·68	..	..	..	..	..	1,289·77	..
	State Battery—Wiluna		..	..	..	..	..	..	..	..	390·00	2,047·17	20·00
	Various Works		..	..	..	..	..	..	..	..	117·50	8,379·57	718·33
	Reported by Banks and Gold Dealers		6·11	..	..	..	..	5,593·22	67·15	..	..	5·74	..
	Total		**6·11**	**367·64**	**12,194·55**	**6,205·66**	**292·23**	**5,614·49**	**6,724·62**	**1,975,050·12**	**881,184·50**	**25,112·72**	

WILUNA DISTRICT.

Note.—Previous to the 1st March, 1910, Wiluna formed part of the Lawlers District. The gold produced by mines at Wiluna previous to that date will be found in the Lawlers District, and the lease numbers of both districts are shown in each case.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Collavilla ..	..	Voided Leases	..	..	..	..	..	..	..	1,518·00	496·28	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	30·00	21·47	..
Mt. Keith ..	(118J)	Aurora	..	..	..	..	..	..	..	2,080·00	2,156·52	..
Do. ..	201J	Aurora	..	..	827·00	673·27	..	..	..	827·00	673·27	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

East Murchison Goldfield—*continued.*

WILUNA DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Mt. Keith ..	205J	Dunbar	..	..	10·75	46·26	..	..	..	10·75	46·26	..
Do. ..	207J	Miss Deal	..	..	231·50	222·58	..	..	..	231·50	222·58	..
Do. ..	(195J)	Starlight	..	..	..	..	..	..	8·29	220·00	39·58	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	1,596·50	1,098·52	..
Do. ..	..	Sundry claims	..	..	350·25	286·96	..	..	78·26	884·25	683·31	..
New England ..	..	Voided leases	..	..	..	..	..	..	..	952·00	309·11	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	115·00	100·62	..
Wiluna ..	91J [940] ..	(Adelaide)	..	..	..	..	..	..	..	401·00	33·29	..
Do. ..	(199J)	Comet	..	..	64·25	28·10	..	..	..	64·25	28·10	..
Do. ..	(187J)	Essex	..	..	498·50	332·55	..	..	..	1,543·50	596·29	..
Do. ..	6J, 7J, 8J, (11J), (13J), (14J), (15J), (17J), (18J), (21J), (22J), (24J), (25J), (26J), (39J), (161J), (163J)	(Gwalia Consolidated, Ltd.)	..	..	..	..	..	..	..	29,774·50	10,780·42	20·29
Do. ..	119J	(Happy Jack)	..	..	..	..	..	..	..	743·00	236·41	..
Do. ..	202J	Happy Jack South	..	..	419·00	275·49	..	..	..	419·00	275·49	..
Do. ..	210J	Just in Time	..	..	879·50	681·60	..	..	..	879·50	681·60	..
Do. ..	4J, [162], (5J), ([163])	Lake Way Leases: Wiluna G.Ms., Ltd.	..	..	..	..	..	..	..	2,044·00	975·78	..
Do. ..	(198J)	Margaret Yuin	..	..	..	..	..	..	..	17·50	18·88	..
Do. ..	10J, [870] ..	(Moonlight)	..	..	..	..	..	..	..	5,181·00	1,078·40	..
Do. ..	10J, 37J, 91J, 109J, (123J)	Moonlight leases	..	..	4,386·00	1,330·17	..	..	..	15,097·00	5,616·49	..
Do. ..	(204J)	Prairie Belle	..	..	34·25	19·25	..	..	..	34·25	19·25	..
Do. ..	212J	Prairie Belle	..	..	127·00	34·47	..	..	..	127·00	34·47	..
Do. ..	120J	Ullina	..	..	54·00	28·61	..	..	..	2,178·25	553·36	..
Do. ..	6J, 7J, 8J, (11J), (13J), (14J), (15J), (17J), (21J), (161J), (163J)	Western Machinery Coy., Ltd. ..	..	..	7,421·25	3,814·19	..	..	..	20,609·25	9,409·06	..
Do. ..	12J, (23J), (28J), (30J), (33J), (36J), (43J), (76J), 113J, 119J, 124J, (137J)	Wiluna Gold Mines, Ltd.	..	..	3,623·75	2,471·71	..	..	..	21,902·25	9,044·32	..
Do. ..	..	Voided leases	..	..	..	..	..	..	27·92	12,966·50	5,609·13	..
Do. ..	..	Sundry claims	..	..	1,640·25	747·21	..	87·59	79·88	5,502·00	2,386·20	·33

From District generally:—											
Sundry Parcels treated at:											
State Battery—Mt. Keith ..	..	..	..	127·96	..	..	..	..	491·73	12·68
State Battery—Wiluna ..	..	..	..	3,351·75	87·81	..	..	155·00	11,468·44	198·70
Reported by Banks and Gold Dealers	..	..	..	..	..	3·20	2·92	..	..	..
Total	..	..	**20,567·25**	**14,472·13**	**87·81**	**90·79**	**197·27**	**128,103·75**	**65,184,·63**	**232·00**

BLACK RANGE DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Barrambie ..	773B, [1458], 774B, [1459], ([1484]), ([1486½]), ([1560]),	Barrambie Ranges G.M. Co., N.L. ..	..	..	12·50	69·50	..	..	..	159·50	1,528·41	..
Do. ..	(809B)	Lilyveil	..	..	21·00	139·49	..	..	..	296·00	333·83	..
Do. ..	..	Sundry claims	..	4·15	..	..	..	..	16·01	120·00	88·21	..
Bellchambers	..	Sundry claims	..	..	..	..	..	..	..	45·00	36·62	..
Birrigrin ..	..	Voided leases	..	..	..	..	..	..	820·68	11,958·16	14,945·20	..
Do. ..	..	Sundry claims	..	..	..	76·01	..	..	34·52	731·00	564·70	..
Curran's Find	641B	Red, White, and Blue	..	..	1,956·00	717·44	..	..	24·58	4,716·00	1,631·55	..
Do. ..	..	Voided leases	..	..	..	..	..	..	107·70	164·50	71·82	..
Do. ..	..	Sundry claims	..	2·21	54·00	11·86	..	..	4·29	380·50	200·83	..
Errolls ..	..	Voided leases	..	..	..	..	..	14·17	18·54	67·00	388·58	..
Do. ..	..	Sundry claims	..	..	10·00	5·08	..	..	28·11	219·50	248·77	..
Hancock's ..	(811B)	Artesian	..	37·45	20·75	28·57	..	..	646·45	150·00	173·95	..
Do. ..	382B	(Bull Oak)	..	..	..	..	..	..	..	725·00	956·77	..
Do. ..	382B	Bull Oak	..	3·71	60·50	39·97	..	..	3·71	60·50	39·97	..
Do. ..	837B	Comedy King	..	54·76	164·25	362·32	..	..	365·90	334·00	788·09	..
Do. ..	(369B), (379B), 382B, (383B)	(Comrades leases)	..	..	..	..	..	..	..	4,641·50	3,443·73	..
Do. ..	389B	(Faugh-a-ballagh)	..	..	..	..	..	..	..	139·00	109·31	..
Do. ..	389B, 495B, 710B,	Faugh-a-ballagh leases	..	95·15	170·00	65·67	..	..	362·15	2,355·00	2,793·23	..
Do. ..	(820B)	Great Koh-i-nor	..	..	19·00	5·08	..	..	..	1,881·50	500·71	1·50
Do. ..	(633B), (637B) ..	(Lady Seddon leases) ..	..	..	..	..	..	..	..	579·50	320·37	..
Do. ..	(383B)	(Maid Marion)	..	..	..	..	..	..	2·47	373·00	490·40	..
Do ..	(369B), (379B), 382B, (383B)	(Royal Oak Mining Co., N.L. ..	..	..	..	..	..	..	..	1,832·75	1,006·72	..
Do. ..	..	Voided leases	..	..	..	..	..	..	5,090·84	12,961·50	15,813·64	50·58
Do. ..	..	Sundry claims	..	13·01	175·50	172·40	..	..	111·13	1,201·75	667·25	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

East Murchison Goldfield—*continued.*

BLACK RANGE DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Maninga Marley	203B	Havilah	..	..	..	..	..	..	..	38·00	26·74	..
Do. ..	203B	(Havilah)	..	..	..	..	..	..	..	1,507·50	2,315·74	..
Do. ..	203B, (243B), (249B), (254B), (287B), (288B), (289B), (305B), (350B), (504B)	(Havilah G.M. Co., N.L.	..	..	..	..	..	..	..	36,508·00	20,052·80	22·55
Do. ..	203B, (243B), (287B), (289B), (350B)	(Havilah G.M. Co., N.L.)	..	..	..	..	..	..	..	6,026·00	5,029·69	..
Do. ..	203B, (243B), (249B), (254B), (287B), (288B), (289B), (305B)	(Havilah leases)	..	..	..	..	..	..	..	2,240·00	2,432·48	..
Do. ..	203B, (243B), (289B)	(Havilah leases: Tailings Treatment, Ltd.)	..	..	..	..	..	..	..	371·00	2,086·50	..
Do. ..	..	Voided leases	..	..	..	..	..	..	195·20	11,977·23	14,442·35	..
Do. ..	..	Sundry claims	..	..	161·00	71·83	..	..	158·16	838·50	663·32	..
Montagu ..	..	Voided leases	..	..	..	..	..	..	94·39	9,133·40	7,223·46	..
Do. ..	..	Sundry claims	..	..	53·00	28·01	..	..	45·67	794·50	462·73	..
Nungarra ..	849B	Doris	..	106·77	20·50	15·90	..	..	106·77	20·50	15·90	..
Do. ..	.. ..	Voided leases	..	..	..	..	..	25·94	879·32	12,142·25	8,777·53	3·64
Do. ..	.. ..	Sundry claims	..	14·88	82·75	27·14	..	46·67	1,455·98	3,317·90	2,080·93	..
Sandstone ..	4B	(Adelaide)	..	..	..	..	..	..	7·21	7,443·00	12,675·94	..
Do. ..	4B, 5B, 11B, (17B), (26B), 70B, 140B, (150B)	(Adelaide leases)	..	..	..	..	..	..	..	21,010·00	30,255·28	..
Do. ..	5B	(Black Range)	..	..	..	..	..	..	152·68	637·00	1,477·66	5·60
Do. ..	4B, 5B, (9B), 11B, (17B), (26B), 70B, 140B, (150B), (256B), (494B), (509B), (620B), (627B)	(Black Range Mining Co., N.L.) ..	..	..	2,104·00	1,952·55	..	4·75	199·90	227,485·00	159,278·43	1,315·00
Do. ..	4B, 5B, 11B, 70B, 140B	Black Range Pinnacles Co., N.L. ..	..	..	620·50	989·25	..	..	..	620·50	989·25	..
Do. ..	255B	(Black Range West G.M. Co., N.L.)..	..	..	..	..	..	..	..	1,077·65	1,035·43	..
Do. ..	255B, 332B, 562B, 601B	Black Range West G.M.Co., N.L. ..	..	..	55·00	16·31	..	..	51·62	613·00	377·95	..
Do. ..	(149B)	(Golden Gate)	..	..	..	..	..	..	..	113·75	62·98	..

Do.	(151B)	(Golden Key)	..	..	..	..	..	..	..	883·00	1,412·75	..
Do.	815B	Jumbo	..	148·78	57·50	30·16	..	..	389·73	121·25	69·97	..
Do.	(16B)	(Kingoonya)	..	..	..	..	..	..	..	1,406·00	1,850·40	..
Do.	(509B)	(Mary S.)	..	..	..	..	..	..	275·60	70·00	84·09	..
Do.	844B	Nancy's Reward	..	2·05	224·50	439·66	..	..	2·05	224·50	439·66	..
Do.	(6B), (10B), (16B), (74B), (81B), (114B), (149B), (151B), (189B), (193B), (206B), (216B), (238B), (463B), (477B), (498B), (553B)	(Oroya Black Range, Ltd.)	..	..	..	..	..	..	..	283,330·00	157,307·04	6,154·63
Do.	789B	Pyx	..	..	..	..	..	..	..	849·50	685·42	13·50
Do.	(6B)	(Sandstone)	..	..	..	..	..	..	..	1,439·50	1,938·54	..
Do.	(766B)	Trafalgar	..	..	..	..	..	..	306·73	2,444·50	1,909·22	27·30
Do.	(10B)	(Undaunted)	..	..	..	..	..	..	..	80·00	46·04	..
Do.	(114B)	(Undaunted East Extended)	..	..	..	..	..	..	..	276·00	181·34	..
Do.	848B	Wanderie	..	..	21·00	9·45	..	..	..	21·00	9·45	..
Do.	(794B)	Wanderie	..	..	..	..	..	..	..	149·00	86·66	..
Do.	(6B), (10B), (16B), (74B), (81B), (114B), (149B), (151B), (174B), (187B), (189B), (193B), (196B), (206B), (216B), (229B), (231B), (232B), (236B), (238B), (283B), (284B), (463B), (477B), (498B,) (553B)	Yuanmi G.Ms., Ltd.	..	..	..	109·25	..	..	..	88,232·29	38,296·28	3,995·89
Do.	..	Voided leases	..	..	..	..	..	..	1,657·33	45,058·33	27,688·70	242·30
Do.	..	Sundry claims	..	34·52	479·75	288·32	..	24·01	794·74	2,284·50	1,346·67	..
Youanme	622B	(Edna)	..	..	..	..	..	..	..	320·00	210·17	..
Do.	526B	(Great Western)	..	..	..	..	..	..	9·71	553·75	417·43	..
Do.	564B	(Junction)	..	..	..	..	..	..	..	975·50	668·33	..
Do.	630B	(Oversight)	..	..	..	..	..	..	..	132·00	37·05	..
Do.	521B	(Peru)	..	..	..	..	..	..	..	98·00	126·86	..
Do.	514B	United	..	11·86	864·00	178·52	..	..	11·86	13,055·50	3,595·22	..
Do.	518B 521B, 522B, 525B, 526B, 564B, 585B, 603B, 605B, 611B, 618B, 622B, 626B, 630B, 636B, 688B, 692B	Yuanmi G.Ms., Ltd.	..	..	29,246·00	18,361·94	1,822·02	..	..	237,264·00	105,908·24	2,855·58
Do.	..	Voided leases	..	..	..	..	..	·36	105·35	7,429·50	1,963·52	..
Do.	..	Sundry claims	..	1·09	..	..	..	..	2·31	1,714·75	442·34	..
	From District generally:—											
	Sundry Parcels treated at:											
	Reply Works	..	..	..	..	..	..	..	..	37·00	2,531·55	..
	State Battery—Black Range	..	..	..	844·28	..	..	..	..	202·00	12,114·67	59·53
	State Battery—Youanme	..	..	..	162·06	..	..	..	..	..	2,566·28	..
	Various Works	..	..	..	..	..	..	..	..	..	3,133·23	..
	Reported by Banks and Gold Dealers	..	11·49	..	..	..	..	1,336·23	11·43	..	..	..
	Total	..	**11·49**	**530·39**	**36,653·00**	**25,218·02**	**1,822·02**	**1,452·13**	**14,550·82**	**1,078,658·21**	**685,972·87**	**14,747·60**

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Murchison Goldfield.

CUE DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Barrambie ..	1458, 1459, (1484), (1486), (1560), [773B], [774B]	Barrambie Ranges G.M. Co., N.L. ..	..	..	..	..	..	..	..	15,665·33	13,566·97	125·60
Do. ..	1458, [773B] ..	(Golden Treasure)	..	..	..	..	..	..	6·54	..	..	..
Do. ..	..	Voided leases	..	..	..	..	..	..	15·95	1,238·59	771·55	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	70·50	35·81	..
Cuddingwarra	1860	Big Bell	..	..	2,406·00	484·30	..	..	..	2,958·36	644·15	..
Do. ..	..	Voided leases	..	..	..	..	..	10·59	124·53	35,855·75	43,796·59	15·42
Do. ..	..	Sundry claims	..	..	..	113·25	..	..	11·86	487·54	852·47	..
Cue ..	203, 1148 ..	(Cue Consolidated G.Ms., Ltd.) ..	..	..	..	..	..	..	..	23,427·50	18,382·10	..
Do. ..	203	Cue No. 1	..	..	..	..	..	..	..	7,753·00	12,772·46	..
Do. ..	1901	Flowers of May	..	17·15	22·00	23·27	..	..	65·55	116·00	198·15	..
Do. ..	1637	Gem of Cue	..	..	61·00	31·44	..	..	..	962·00	928·03	..
Do. ..	1637	(Gem of Cue)	..	..	..	..	..	..	..	214·50	233 79	..
Do. ..	1637, (1663) ..	(Gem of Cue leases)	..	..	..	..	..	..	..	3,264·50	1,941·52	..
Do. ..	1783	Hidden Treasure	..	..	95·50	43·24	..	..	..	10,676·50	11,898·78	..
Do. ..	1148	(Light of Asia)	..	..	..	..	..	..	..	10,175·00	7,302·20	..
Do. ..	1148, (1299), (1300), (1634), (1666,) (1667)	(Light of Asia leases)	..	..	..	..	..	..	..	14,024·00	9,078·43	..
Do. ..	1148, 1151, 1252, (1300), 1362, 1498, (1634), (1667)	Light of Asia and Queen of the May leases	..	..	4,183·00	2,794·54	..	..	..	12,065·00	7,911·80	..
Do. ..	1151, 1252, 1362, (1391), 1498, (1689)	(Queen of the May leases) ..	..	..	..	..	..	..	..	6,926·00	6,974·06	..
Do. ..	1248	Rising Sun	..	..	111·50	127·21	..	..	..	1,585·50	1,135·23	..
Do. ..	1853	(Vera)	..	..	..	..	..	..	..	418·00	432·64	..
Do. ..	1853, 1855 ..	Vera leases	..	..	122·50	131·58	..	..	..	533·00	575·34	..
Do. ..	1918	Volunteer	..	..	238·00	109·49	..	..	..	238·00	109·49	..
Do. ..	..	Voided leases	..	..	..	..	..	34·72	463·90	164,254·62	111,691·63	43·35
Do. ..	..	Sundry claims	..	28·22	745·50	415·87	..	10·50	325·19	14,499·59	9,048·76	..
Eelya ..	..	Voided leases	..	..	..	..	..	..	8·78	966·00	1,774·03	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	73·65	505·15	560·73	..
Errolls ..	..	Voided leases	..	..	..	..	..	..	20·25	14,098·50	8,902·24	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	227·00	92·86	..

Mindoolah ..	..	Voided leases	..	..	..	..	..	3·07	..	7,935·50	4,773·33	42·97
Do. ..	..	Sundry claims	..	..	..	..	..	..	9·81	1,004·00	1,123·77	..
Reedy's Find	1923	Turn of the Tide	..	..	10·00	220·97	..	..	..	10·00	220·97	..
Do. ..	..	Voided leases	..	..	..	..	..	..	210·65	540·00	673·20	..
Do. ..	..	Sundry claims	..	2·80	..	..	..	136·94	20·56	195·05	116·52	..
Tuckabiano ..	(1898)	L. and P. Alliance	..	..	..	..	..	..	146·77	2·00	43·18	..
Do. ..	1931	Tosiana	..	..	72·00	163·97	..	..	..	72·00	163·97	..
Do. ..	1914	Triplicate	..	..	439·00	167·71	..	..	..	439·00	167·71	..
Do. ..	..	Sundry claims	..	5·32	..	..	..	..	9·02	27·50	14·20	..
Tuckanarra ..	1337	Nemesis	..	..	..	..	..	..	608·78	2,214·00	6,077·07	..
Do. ..	(1913)	Sure Thing	..	..	..	..	..	..	8·85	..	..	..
Do. ..	..	Voided leases	..	..	..	..	..	14·65	2,086·57	15,576·10	14,379·82	172·77
Do. ..	..	Sundry claims	..	..	77·00	258·08	..	31·60	88·29	2,730·70	5,687·42	..
		From District generally :—										
		Sundry Parcels treated at :										
		Cue No. 1 Works	..	..	..	868·17	..	..	..	1,870·50	6,222·56	..
		Gem of Cue Extended Works	..	..	..	..	..	..	..	..	875·19	..
		State Battery—Tuckanarra	..	..	..	..	..	..	..	518·50	2,791·95	..
		Various Works	..	..	..	..	..	..	..	5,055·02	17,693·47	..
		Reported by Banks and Gold Dealers	4·71	..	..	..	..	755·43	7·54	..	..	..
		Total	**4·71**	**53·49**	**8,583·00**	**5,953·09**	**..**	**997·50**	**4,313·04**	**381,415·30**	**332,636·14**	**400·11**

MEEKATHARRA DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Abbotts ..	..	Voided leases	..	..	..	..	..	..	..	35,165·60	37,103·60	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	44·60	63·56	..
Burnakura ..	(509N), (527N) ..	Federal City leases)	..	..	..	..	..	..	..	14,583 00	7,288·96	..
Do. ..	(509N), (527N), (949N)	(Federal City leases)	..	..	..	..	..	..	..	2,084·00	1,120·21	..
Do. ..	(509N,) (527N), (949N), (1009N)	Federal City leases	..	..	..	10·03	..	..	..	4,019·00	1,340·43	..
Do. ..	..	Voided leases	..	..	..	..	..	..	3,239·43	17,794 95	20,829·43	26·90
Do. ..	..	Sundry claims	..	..	9·00	28·96	..	12·51	81·11	137·00	111·87	..
Chesterfield ..	..	Voided leases	..	..	..	..	..	29·02	409·15	6,756·26	7,445·01	·80
Do. ..	..	Sundry claims	..	..	..	..	..	..	38·83	428·60	472·64	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Murchison Goldfield—*continued.*

MEEKATHARRA DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Gabanintha ..	1397N	Birthday	..	16·93	4·50	11·33	..	..	16·93	4·50	11·33	..
Do. ..	1360N	Leviathan	..	..	74·00	16·25	..	..	..	74·00	16·25	..
Do. ..	1324N	Hamburg Belle	..	..	449·00	155·73	..	..	..	790·50	406·52	..
Do. ..	1175N	Unexpected	..	..	..	..	..	..	..	193·00	94·51	25·00
Do. ..	..	Voided leases	..	..	..	..	..	..	..	20,266·00	12,624·42	524·66
Do. ..	..	Sundry claims	..	..	108·00	71·36	..	1·33	37·34	1,050·50	700·83	..
Garden Gully	(1367N)	Crescent	..	..	..	..	..	..	..	10·50	6·31	..
Do. ..	(1376N)	Gally Mont	..	..	93·50	68·58	..	..	..	93·50	68·58	..
Do. ..	1344N	Kyarra G.M., N.L.	..	..	..	..	..	..	..	3,436·00	1,466·87	203·99
Do. ..	(1342N)	Lydia	..	..	17·00	13·95	..	..	38·11	118·03	178·20	..
Do. ..	(1343N)	Sydney	..	..	..	..	..	..	..	10·50	8·37	..
Do. ..	..	Voided leases	..	..	..	..	..	26·36	36·80	26,185·53	19,707·04	898·60
Do. ..	..	Sundry claims	..	..	..	..	..	..	3·32	238·10	306·16	..
Gum Creek ..	1386N	Alma May	..	..	33·00	18·68	..	..	..	33 00	18·68	..
Do. ..	..	Voided leases	..	..	..	..	..	25·27	88·12	2,557 08	3,110·73	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	338 00	278·36	..
Holden's Find	(1307N)	Golden Horn	..	..	..	..	..	..	8·72	..	..	..
Do. ..	1311N	Grand Junction	..	..	22·00	13·77	..	..	..	22·00	13·77	..
Do. ..	1278N	Junction	..	..	477·00	171·09	..	..	5·10	628·00	454·36	..
Do. ..	1338N	Moa	..	..	105·00	32·01	..	..	..	105·00	32·01	..
Do. ..	1277N	Woodrow	..	..	222·00	154·76	..	..	..	351·75	395·41	..
Do. ..	..	Voided leases	..	..	..	..	..	..	·95	..	..	..
Do. ..	..	Sundry claims	..	..	20·00	8·38	..	..	..	20·00	8·38	..
Jillawarra ..	..	Voided leases	..	..	..	..	..	..	1,134·68	1,499·55	2,801·53	..
Do. ..	..	Sundry claims	..	5·72	6·00	10·03	..	169·02	126·27	23·50	53·81	..
Meeka Pools..	..	Voided leases	..	..	..	..	..	..	..	111·58	82·27	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	2·84	211·72	184·83	..
Meekatharra..	1357N	Britannia	..	..	506·00	438·79	..	..	16·53	695·00	577·89	..
Do. ..	597N	(Commodore)	..	..	..	..	..	..	..	498·00	1,268·71	..
Do. ..	597N, 915N, 1041N, 1365N	Commodore G.M. Co., N.L.	..	..	820·00	2,031·83	..	..	..	35,731·00	15,094·08	..
Do. ..	1382N	Danube	..	..	10·00	3·18	..	..	..	10·00	3·18	..
Do. ..	477N	(Fenian)	..	..	..	..	..	..	..	8,831·75	18,289·22	..

Do.	477N, 814N	Fenian leases	..	..	24,334·00	22,363·08	..	..	..	185,790·00	165,256·97	..
Do.	1354N	Fenian West	..	..	..	..	..	..	..	169·00	25·66	..
Do.	912N	Globe	..	..	193·50	239·39	..	..	..	1,056·98	1,505·54	..
Do.	(1163N)	Golden Bracelet	..	..	18·00	17·61	..	..	2·69	1,168·52	1,006·78	..
Do.	1331N	Gwalia	..	115·72	468·00	478·74	..	..	115·72	494·00	555·08	..
Do.	635N	Halcyon Extended	..	..	93·00	37·21	..	..	3·60	2,264·50	1,221·55	..
Do.	1345N	Haveluck	..	..	716·50	376·76	..	..	8·92	1,489·50	530·32	..
Do.	555N	(Ingliston)	..	..	..	..	..	..	..	1,202·49	2,332·27	..
Do.	475N	(Ingliston Consols Extended)	..	..	..	..	..	..	..	1,536·25	4,248·25	·30
Do.	475N, 515N, 729N, 822N	Ingliston Consols Extended leases	..	..	26,131·91	13,880·03	..	..	..	136,938·51	83,081·61	..
Do.	398N	(Ingliston Extended)	..	..	..	..	..	..	..	1,320·25	1,106·46	..
Do.	398N, 437N, 462N, 529N, 539N, 847N, 881N, 1033N	Ingliston Extended G.Ms., Ltd.	..	..	10,358·00	4,110·56	..	..	..	109,570·95	56,455·71	..
Do.	555N, 1239N	Ingliston leases	..	..	1,290·00	1,229·19	..	..	..	5,213·85	5,679·21	..
Do.	902N	Ingliston North	..	..	..	..	..	..	..	10·00	25·05	..
Do.	1202N	Ingliston Proprietary South	..	..	..	..	..	..	..	54·00	89·12	..
Do.	637N	(Ingliston South Extended)	..	..	..	..	..	..	..	10·00	10·60	..
Do.	507N	(Ingliston United)	..	..	..	..	..	..	..	293·25	147·95	..
Do.	507N, 637N, 931N, 933N, 964N, 1071N, 1142N	(Lake View and Oroya Exploration, Ltd.)	..	..	6,514·28	2,079·71	250·11	..	..	117,650·26	45,208·20	2,448·42
Do.	915N	(Macquarrie)	..	..	..	11·18	..	..	40·05	4,315·08	1,148·10	..
Do.	533N	Marmont	..	..	122·00	92·61	..	..	..	54,205·00	37,996·53	..
Do.	580N	(Marmont Extended)	..	..	..	..	..	..	..	43·00	38·03	..
Do.	580N, 888N	Marmont Extended leases	..	..	..	..	..	..	..	152·00	129·61	..
Do.	372N	Pioneer	..	2·19	120·50	84·39	..	..	38·17	6,943·68	6,319·22	..
Do.	507N, 637N, 931N, 933N, 964N, 1071N, 1142N, 1366N	Queenhills Gold Mines, Ltd.	..	..	107·00	4·52	..	..	..	107·00	4·52	..
Do.	931N	(Queen of the Hills)	..	..	..	..	..	..	..	549·00	158·59	..
Do.	(1233N)	Victory	..	..	342·00	42·37	..	..	..	1,807·10	243·28	..
Do.		Voided leases	..	..	..	..	..	3·88	239·22	32,692·83	24,414·07	3·00
Do.		Sundry claims	..	..	307·00	154·19	..	181·83	139·61	3,250·55	1,767·92	..
Munara Gully		Voided leases	..	..	..	..	..	..	..	13,167·75	6,489·65	..
Do.		Sundry claims	..	3·67	17·00	18·27	..	..	11·62	80·00	40·02	..
Nannine	(16N), (25N), 166N	Nannine leases	..	..	188·00	110·11	..	..	8·71	23,649·60	24,385·66	127·60
Do.	(25N)	(Royalist Consolidated)	..	..	..	..	..	..	19·18	762·53	3,500·70	..
Do.		Voided leases	..	..	..	..	..	34·02	342·77	67,334·49	39,548·03	39·85
Do.		Sundry claims	..	..	60·00	33·55	..	7·63	243·73	2,309·20	1,796·34	..
Quinns'	(1245N)	Commonwealth	..	..	44·00	4·55	..	..	..	466·35	234·80	..
Do.	(1334N)	Kaladbro	..	..	..	..	..	..	11·81	171·50	46·44	..
Do.	(1353N)	Murchison Wonder	..	..	..	..	..	..	62·50	100·60	69·93	..
Do.	(1225N)	Nowthanna	..	2·31	11·00	9·70	..	..	56·30	576·00	226·30	..
Do.	1389N	Nowthanna	..	..	184·00	77·44	..	..	..	184·00	77·44	..
Do.	(1244N)	Phœnix Extended	..	..	..	..	..	..	..	1,291·85	518·87	..
Do.	1341N	Singapore	..	..	97·50	49·07	..	..	..	389·10	206·31	..
Do.	(1370N)	Suvla	..	..	..	..	..	..	..	391·00	33·47	..
Do.		Voided leases	..	..	..	..	..	7·30	1,055·89	15,241·76	7,394·48	90·70
Do.		Sundry claims	..	..	120·50	247·75	..	2·25	663·23	1,427·50	1,185·65	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Murchison Goldfield—*continued.*

MEEKATHARRA DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Ruby Well ..	1364N	Golden Grindstone	..	..	131·00	140·88	..	..	..	198·00	219·18	..
Do. ..	1261N [364F] ..	Harder to Find	..	..	2,590·00	1,081·32	..	..	..	6,885·00	3,327·52	..
Do. ..	(1263N), ([370F])	Lucky Call	..	..	..	..	..	..	..	19·00	19·47	..
Do. ..	1368N	Rubyanna	..	..	46·00	78·70	..	..	..	46·00	78·70	..
Do. ..	1219N	Waterloo	..	..	85·00	26·56	..	..	..	85·00	26·56	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	260·50	112·50	..
Do. ..	..	Sundry claims	..	..	48·00	78·77	..	..	8·48	261·00	341·66	..
Stake Well ..	..	Voided leases	..	..	..	..	..	..	200·12	21,342·00	9,536·07	..
Do. ..	..	Sundry claims	..	..	13·00	34·89	..	..	31·79	186·00	192·00	..
Star of the East	..	Voided leases	..	..	..	..	..	..	..	27,244·00	20,305·40	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	127·62	94·97	..
Yaloginda ..	(1084N)	Chunderloo	..	..	..	..	..	..	..	2,855·55	844·07	8·68
Do. ..	(1373N)	Roseview	..	..	..	..	..	..	105·77	..	..	..
Do. ..	..	Voided leases	..	..	..	..	..	..	492·14	22,855·97	12,182·45	..
Do. ..	..	Sundry claims	..	..	158·00	277·97	...	10·89	357·47	1,799·17	1,353·97	..
		From District generally :—										
		Sundry Parcels treated at :										
		Connecticut Battery	..	..	..	..	..	..	..	..	173·61	..
		Hornsby Battery	..	..	..	..	..	..	..	33·00	111·31	..
		Margueritta Cyanide Works	..	..	..	..	..	..	..	..	31·37	..
		Ruby Well Battery	..	..	..	251·88	..	..	..	..	251·88	..
		State Battery, Meekatharra	..	..	..	..	..	..	..	14·00	10,034·23	19·00
		State Battery, Nannine	..	..	..	..	..	..	..	..	404·11	..
		State Battery, Quinns	..	..	..	..	..	..	..	..	618·79	..
		Various Works	..	..	..	..	..	..	..	139·75	3,755·02	342·17
		Reported by Banks and Gold Dealers	194·36	..	..	..	..	9,467·60	13·79	..	..	..
		Total	**194·36**	**146·54**	**77,884·69**	**50,981·66**	**250·11**	**9,978·91**	**9,557·51**	**1,067,342·94**	**744,573·45**	**4,759·67**

DAY DAWN DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Day Dawn ..	389D	(Creme D'or)	..	..	..	..	..	..	..	150·00	175·18	..
Do. ..	389D, 421D, 422D	Creme D'or leases	..	..	..	..	..	2·49	..	4,693·62	3,321·19	..
Do. ..	1D, 2D, 86D, 87D, 99D, 119D, 129D, 158D, 159D, 170D, 185D, 191D, 209D, 210D, 211D, 212D, 213D, 224D, 225D, (249D), 424D, 453D, (455D), (467D)	Great Fingall Consolidated, Ltd. ..	..	..	30,405·38	15,422·87	2,488·57	..	..	1,808,130·01	1,155,705·92	165,474·19
Do. ..	119D	(West Fingall, No. 6)	..	..	..	..	..	..	..	43·00	15·32	..
Do. ..	..	Voided leases	..	..	..	..	..	123·81	511·03	40,196·76	27,253·15	·24
Do. ..	..	Sundry claims	..	..	35·00	8·26	..	..	132·06	1,851·58	1,347·03	..
Lake Austin (Island)	537D	Good Luck	..	78·44	..	..	..	..	498·70	21·00	95·65	..
Do. ..	..	Voided leases	..	..	..	..	..	590·52	672·01	29,715·87	45,240·25	..
Do. ..	..	Sundry claims	..	..	97·60	66·14	..	17·74	179·92	336·64	207·95	..
Mainland ..	(530D)	Sydney	..	..	..	..	..	..	178·77	..	..	..
Do. ..	..	Voided leases	..	..	..	..	..	·41	2,527·49	7,272·13	23,129·51	..
Do. ..	..	Sundry claims	..	7·72	..	..	..	3·24	65·87	77·45	89·03	..
Webbs' Patch	(532D)([1917, Cue])	Bustard	..	..	..	..	..	..	200·29	5·00	24·34	..
Do. ..	513D, 517D, 518D, 520D, 535D	Black Range Pinnacles Co., N.L. ..	..	..	5,254·00	2,488·00	..	..	..	5,254·00	2,488·00	..
Do. ..	513D	(Comet)	..	..	..	..	..	..	..	67·20	36·23	..
Do. ..	(526D)	Hill End	..	55·98	..	..	..	..	442·26	..	..	..
Do. ..	(534D)	Venus	..	..	7·00	7·30	..	..	..	7·00	7·30	..
Do. ..		Voided leases	..	..	..	..	..	4·90	138·73	6,046·55	5,008·53	..
Do. ..		Sundry claims	..	..	..	..	..	..	355·92	84·00	324·41	..
		From District generally :—										
		Sundry Parcels treated at :										
		Various Works	..	..	..	..	..	..	16·61	940·75	1,537·30	..
		Reported by Banks and Gold Dealers	..	..	..	..	..	1,542·21	3·48	..	·77	..
		Total	..	**142·14**	**35,798·98**	**17,992·57**	**2,488·57**	**2,285·32**	**5,923·14**	**1,904,892·56**	**1,266,007·06**	**165,474·43**

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Murchison Goldfield—*continued.*

MOUNT MAGNET DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Lennnoville ..	964M	(Empress)	..	..	..	..	..	..	..	1,649·00	7,361·81	..
Do. ..	964M, 1078M, 1079M, (1115M), (1116M), (1117M)	Empress leases	..	..	2,844·00	1,350·42	..	..	..	3,676·00	2,770·40	..
Do. ..	(1148M)	Empress Northwest	..	..	10·75	13·64	..	..	4·18	10·75	13·64	..
Do. ..	..	Voided leases	..	..	..	..	..	..	3,192·61	133,304·23	112,478·86	458·82
Do. ..	..	Sundry claims	..	..	41·00	72·20	..	7·11	78·66	1,786·67	1,116·26	..
Mt. Magnet ..	(1125M)	Bright Dawn	..	..	..	..	..	..	..	55·75	58·56	..
Do. ..	(1136M)	Dollar	..	..	..	..	..	..	..	12·00	15·25	..
Do. ..	1032M	Early Bird	..	..	..	183·83	..	..	114·00	1,182·00	1,533·64	..
Do. ..	1149M	Ethel May	..	..	4,035·00	894·38	..	..	..	4,035·00	894·38	..
Do. ..	1144M	Fortune of War	..	..	190·75	107·13	41·75	..	..	319·50	174·61	41·75
Do. ..	1155M	Gift	..	250·89	50·25	343·78	..	..	250·89	50·25	343·78	..
Do. ..	1156M	Leap Year	..	..	45·00	49·23	..	..	..	45·00	49·23	..
Do. ..	1013M	Mars	..	..	5,005·00	1,198·43	..	..	..	8,078·15	1,834·16	..
Do. ..	(1097M)	May Queen	..	..	..	..	..	..	6·69	111·75	47·98	..
Do. ..	(1107M	Mint	..	·84	14·00	6·10	..	..	167·83	56·75	71·94	..
Do. ..	(1133M)	Missing Link	..	..	..	7·60	..	..	113·13	27·75	79·19	..
Do. ..	(1146M)	Mistico	..	..	19·00	15·81	..	..	..	67·75	33·84	..
Do. ..	1151M	Morning Star	..	..	242·75	99·70	..	..	..	242·75	99·70	..
Do. ..	(314M), (317M), (320M), (942M), (972M), (988M), (989M), (1049M), (1050M), (1051M), (1052M)	Morning Star G.Ms., Ltd.	..	..	..	..	..	..	..	17.660·50	6,798·74	..
Do. ..	445M	Neptune	..	..	191·40	192·09	..	..	927·80	2,401·06	2,948·42	..
Do. ..	1075M	New Havelock	..	..	366·00	93·16	..	..	..	909·00	304·67	..
Do. ..	1046M	New Year	..	..	217·00	152·27	..	..	..	1,707·00	2,607·96	..
Do. ..	1095M	Pearl	..	..	36·25	22·22	..	..	2·36	221·82	214·19	..
Do. ..	1102M	Ready Money	..	43·73	105·25	55·85	..	..	596·39	385·50	544·42	..
Do. ..	696M	Sirdar	..	..	1,414·75	274·94	..	..	..	17,812·10	6,216·51	..
Do. ..	1119M	Sovereign	..	..	..	..	..	..	..	111·25	137·75	..
Do. ..	1041M	St. Patrick	..	4·31	..	..	..	..	4·31	619·35	774·87	..
Do. ..	1159M	Tame Cat	..	..	10·50	5·05	..	..	..	10·50	5·05	..
Do. ..	1124M	Tattersall's	..	24·57	242·75	108·50	..	..	47·55	330·75	355·27	..
Do. ..	1147M	Ticket	..	..	85·00	16·82	..	..	..	162·50	51·23	..
Do. ..	1157M	Tide of Fortune	..	376·55	10·25	16·50	..	..	376·55	10·25	16·50	..
Do. ..	1165M	Trevallen	..	..	106·75	29·77	..	..	..	106·75	29·77	..
Do. ..	1069M	Turning Point	..	6·04	20·00	7·28	..	..	8·35	100·50	118·93	..
Do. ..	1058M	Two Phills	..	..	8·25	7·71	..	..	38·51	147·25	223·87	..

Do. ..	(1055M)	Worker	..	..	..	..	..	..	..	..	151·25	24·92	..
Do. ..	(1135M)	Yorkshireman	..	..	60·00	8·77	..	..	..	..	60·00	8·77	..
Do. ..	..	Voided leases	..	..	..	..	..	27·83	5,262·43	297,554·65	173,719·72	672·61	
Do. ..	..	Sundry claims	..	271·23	1,470·33	773·23	..	·45	1,075·05	14,756·16	9,245·55	..	
Mt. Magnet, East	..	Voided leases	..	..	..	..	..	63·29	764·53	5,522·28	2,811·75	..	
Do. ..	..	Sundry claims	..	..	..	..	..	..	37·22	214·50	144·10	..	
Moyagee ..	(1081M)	Moonlight	..	..	..	..	..	..	5·08	87·50	317·08	..	
Do. ..	1099M	Moyagee	..	..	..	..	..	..	..	402·50	849·58	..	
Do. ..	..	Voided leases	..	..	..	..	..	..	..	1,965·65	2,099·66	..	
Do. ..	..	Sundry claims	..	3·86	10·50	56·95	..	..	98·33	533·98	633·68	..	
Paynesville ..	1139M	Aftermath	..	..	9·75	20·35	..	..	5·84	9·75	20·35	..	
Do. ..	..	Voided leases	..	..	..	..	..	..	147·06	10·00	6·27	..	
Do. ..	..	Sundry claims	..	..	27·75	187·24	..	..	1·46	27·75	466·69	..	
Youanme ..	..	Sundry claims	..	..	..	..	..	..	..	33·00	44·58	..	
		From District generally :—											
		Sundry Parcels treated at :											
		Fremantle Trading Co's. Works	..	..	..	6·93	..	..	..	..	143·80	..	
		Longreef Treatment Works	..	..	..	..	..	..	..	..	2,114·05	..	
		Morning Star Battery	..	..	..	..	..	..	..	..	863·23	..	
		State Battery—Boogardie	..	..	..	1,564·74	..	..	..	65·01	11,885·55	..	
		State Battery—Lennonville	..	..	..	..	..	..	..	18·06	6,576·77	..	
		Various Works	..	..	..	..	..	..	..	25·00	7,028·75	1·00	
		Reported by Banks and Gold Dealers	29·69	..	..	..	..	1,648·83	·35	..	..	..	
		Total	**29·69**	**982·02**	**16,889·98**	**7,942·62**	**41·75**	**1,747·51**	**13,327·16**	**518,844·17**	**369,330·23**	**1,174·18**	

Yalgoo Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Adavale ..	..	Sundry claims	..	..	..	..	..	..	..	10·00	12·56	..
Bilberatha ..	..	Voided leases	..	..	..	..	..	..	..	554·00	200·07	..
Carlaminda ..	..	Voided leases	..	..	..	..	..	..	..	947·32	524·72	3·30
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	114·00	71·96	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Yalgoo Goldfield—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Fields Find ..	848	Alma	..	..	43·00	6·27	..	..	..	43·00	6·27	..
Do. ..	850	Commodore	..	..	24·00	16·64	..	..	..	24·00	16·64	..
Do. ..	680	Fields Find Extended	..	..	444·50	344·45	..	..	..	942·50	1,020·65	..
Do. ..	844	Golden Kangaroo	..	..	2·50	44·14	..	..	..	2·50	44·14	..
Do. ..	845	Lliven	..	..	..	2·90	..	..	..	..	2·90	..
Do. ..	.. ..	Voided leases	..	..	..	..	..	..	204·26	33,847·80	24,651·93	..
Do. ..	..	Sundry claims	5·77	11·12	65·00	86·60	..	5·77	157·03	276·75	345·04	..
Goodingnow	681	Aster Consolidated	..	2·77	172·50	74·96	..	..	2·77	1,161·00	924·49	..
Do. ..	(690)	Blend	..	..	196·50	84·35	..	..	10·51	679·50	411·25	..
Do. ..	603	Carnation	..	..	484·50	566·55	..	..	..	2,316·00	2,847·40	..
Do. ..	606	(Lake View)	..	..	..	..	..	..	..	163·00	185·46	..
Do. ..	606	Lake View: Paynes' Find Development Co., N.L.	..	15·58	943·50	913·76	..	..	15·58	3,420·50	3,115·15	..
Do. ..	854	Marguerite	..	..	30·00	20·07	..	..	..	30·00	20·07	..
Do. ..	(733)	Marigold	..	3·02	65·00	49·34	..	..	3·02	164·00	190·12	..
Do. ..	630	Marraposa	..	..	99·50	62·99	..	..	..	804·00	772·76	..
Do. ..	613	Orchid	..	..	204·00	174·00	..	..	..	1,039·00	2,025·74	..
Do. ..	849	Princess Mary	..	..	97·50	185·45	..	..	..	97·50	185·45	..
Do. ..	607	Sweet William	..	28·18	388·50	498·47	..	..	70·05	922·00	1,146·79	..
Do. ..	607	(Sweet William)	..	..	..	..	..	..	2·16	4·85	81·59	..
Do. ..	607, (608), (662) ..	(Sweet William Consolidated Mines, N.L.)	..	..	..	..	..	..	7·68	907·46	1,564·84	..
Do. ..	.. ..	Voided leases	..	..	..	..	..	15·82	155·45	1,641·00	1,564·97	..
Do. ..	.. ..	Sundry claims	..	..	179·00	61·81	..	148·00	4·32	1,939·50	1,020·89	..
Gullewa ..	744	Mugga King	..	..	50·00	31·03	..	..	..	265·00	230·35	..
Do. ..	.. ..	Voided leases	..	..	..	..	..	..	..	21,679·50	14,334·31	..
Do. ..	.. ..	Sundry claims	..	..	..	..	..	..	..	629·50	531·62	..
Kirkalucka ..	.. ..	Sundry claims	..	..	..	..	..	..	..	8·80	4·01	..
Messenger's Patch	.. ..	Voided leases	..	..	..	..	..	..	..	315·99	587·20	305·89
Do. ..	.. ..	Sundry claims	..	41·66	127·75	84·03	..	463·12	315·11	432·05	265·31	..
Mt. Farmer ..	.. ..	Voided leases	..	..	..	..	..	..	..	64·00	40·19	..
Do. ..	.. ..	Sundry claims	..	..	..	..	..	..	..	5·00	6·22	..
Mt. Gibson ..	855	Gibsonite	..	..	5·00	17·67	..	..	..	5·00	17·67	..

Ninghan ..	694	Boni Venture G.M. Syndicate, N.L. ..	..	..	10·00	1·41	..	..	..	10·00	1·41	..
Do. ..	722, 723 ..	Golden Harp leases	..	6·44	..	..	..	..	6·44	3·00	356·55	..
Do. ..	..	Sundry claims	..	..	5·00	17·89	..	..	..	5·00	17·89	..
Noongal ..	(728)	Black Watch	..	..	..	..	..	..	..	23·00	6·46	..
Do. ..	..	Voided leases	..	..	..	..	..	..	15·86	3,063·95	1,841·20	..
Do. ..	..	Sundry claims	..	30·74	18·50	23·42	..	11·55	64·97	266·50	184·96	..
Nyounda ..	..	Voided leases	..	..	..	..	..	..	217·63	416·00	183·91	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	18·00	21·67	..
Pinyalling ..	..	Voided leases	..	..	..	..	..	..	1·36	2,281·60	902·03	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	42·50	22·14	..
Rothesay ..	749	British Queen	..	..	..	31·08	..	..	..	..	31·08	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	8,971·00	3,300·07	..
Wadgingarra	..	Voided leases	..	..	..	..	..	..	..	541·61	600·91	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	71·50	38·21	..
Warriedar ..	843	Black Jack	..	..	16·00	3·96	..	..	..	16·00	3·96	..
Do. ..	822	Golden Bar	..	..	..	..	..	..	..	44·00	22·23	..
Do. ..	863	Golden Bar Extended	..	..	7·00	13·14	..	..	..	7·00	13·14	..
Do. ..	699	Iron Clad	..	..	587·00	278·83	7·30	..	..	1,064·50	419·97	7·30
Do. ..	708	Mug's Luck	..	..	2,682·00	788·06	..	..	..	3,200·00	910·47	..
Do. ..	731	Porcupine	..	..	..	..	..	..	..	23·00	4·45	..
Do. ..	739	Porcupine South	..	..	..	..	..	..	..	81·00	16·99	..
Do. ..	(785)	St. Patrick's Day	..	..	..	..	..	..	..	95·00	42·20	..
Do. ..	727	Warriedar	..	..	139·00	58·78	..	..	..	284·00	134·25	..
Do. ..	..	Sundry claims	..	1·80	10·50	3·70	..	..	1·80	92·50	62·65	..
Yalgoo ..	851	Relience	..	..	12·50	3·08	..	..	..	12·50	3·08	..
Do. ..	..	Voided leases	..	..	..	..	..	..	3·23	6,295·00	9,961·17	..
Do. ..	..	Sundry claims	..	..	114·00	36·11	..	..	16·37	781·50	484·67	..
Yuin	712, 735	Bullrush Gold Estates, N.L. ..	..	..	8,452·00	2,774·49	41·30	..	..	23,690·00	7,302·83	130·13
Do. ..	..	Voided leases	..	..	..	..	..	..	127·12	31,381·50	14,957·04	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	4·70	276·50	57·88	..
		From Goldfield generally :—										
		Sundry Parcels treated at :										
		Fields Find Extended Treatment Works ..	..	..	..	80·96	..	..	..	..	152·40	..
		Goodingnow (Paynes' Find) State Battery ..	..	..	..	395·37	..	..	..	13·00	1,141·98	..
		Yuanmi G.M., Ltd., Works (Warriedar Options)	..	..	..	208·13	25·26	..	..	..	310·93	26·67
		Various Works	..	..	..	..	..	9·42	..	664·00	1,332·45	..
		Reported by Banks and Gold Dealers	3·72	..	..	..	..	666·73	..	..	..	..
		Total	**9·48**	**141·31**	**15,675·75**	**8,043·89**	**73·86**	**1,320·41**	**1,723·41**	**159,461·89**	**103,532·65**	**167·40**

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Mount Margaret Goldfield.

MOUNT MORGANS DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Australia United	..	Voided leases	..	..	..	..	..	..	1,911·63	15,913·69	23,305·76	1·76
Do. ..	..	Sundry claims	..	85·25	12·00	27·99	..	..	357·86	793·55	2,057·32	..
Federation Well	..	Voided leases	..	..	..	..	..	..	..	1,248·50	1,782·71	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	63·50	33·20	..
Korong ..	..	Voided leases	..	..	..	..	..	17·95	72·23	2,722·00	3,473·45	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	34·97	258·00	167·06	..
Mt. Margaret	314F	Mt. Morven	..	..	230·00	196·64	..	..	..	1,974·00	1,161·31	..
Do. ..	..	Voided leases	..	..	..	..	..	·37	..	3,963·00	2,697·10	12·55
Do. ..	..	Sundry claims	..	..	..	..	..	16·61	44·03	365·50	281·86	..
Mt. Morgans	(278F)	Australian	..	..	..	..	..	..	..	71·50	19·99	..
Do. ..	(335F)	Bravo	..	..	90·00	15·49	..	..	..	90·00	15·49	..
Do. ..	6F	(Lily of the Valley South: Westralia Mt. Morgans G.M. Co., Ltd.)	..	..	..	..	..	..	..	1,587·50	808·18	..
Do. ..	6F	(Lily of the Valley South: Westralia Mt. Morgans Syndicate, Ltd.)	..	..	..	..	..	..	..	3,002·00	1,022·90	..
Do. ..	325F	Millionaire	..	..	..	189·40	..	..	..	144·00	675·80	..
Do. ..	5F, (10F), (19F), (22F), (32F), (73F)	(Westralia Mt. Morgans G.M. Co., Ltd.)	..	..	..	..	..	..	..	575,148·00	294,758·28	5,552·63
Do. ..	7F, (20F), (21F) ..	(Westralia Mt. Morgans G.M. Co., Ltd.)	..	..	..	..	..	..	..	18,261·00	8,127·69	..
Do. ..	5F, 6F, 7F, (10F), (19F), (20F), (22F), (32F)	Westralia Mt. Morgans Mines, N.L. ..	..	..	35,680·00	7,611·24	..	..	..	78,501·00	17,889·78	..
Do. ..	..	Voided leases	..	..	..	..	..	..	76·56	33,966·25	20,174·80	77·86
Do. ..	..	Sundry claims	..	..	88·75	81·95	..	6·61	22·66	1,311·50	1,565·11	..
Murrin Murrin	..	Voided leases	..	..	..	..	..	10·43	222·93	127,364·72	100,606·89	29·60
Do. ..	..	Sundry claims	..	..	7·00	4·84	..	..	154·48	846·75	852·31	..
Redcastle ..	.. .. ..	Voided leases	..	..	..	..	..	4·49	436·54	2,509·95	2,169·63	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	103·58	139·00	163·01	..
		From District generally :—										
		Sundry Parcels treated at :										
		Hainault Sulphide Plant—Kalgoorlie	..	..	111·33	74·09	..	..	..	111·33	74·09	..
		Mt. Morven Cyanide Works	..	..	..	..	..	..	..	..	129·48	..
		Oratava Works—Kalgoorlie	..	..	..	..	..	..	..	..	14·16	..
		Westralia Mt. Morgans Works	..	..	..	153·10	..	..	..	..	153·10	..
		Various Works	..	..	..	..	..	..	..	788·50	2,995·91	84·03
		Reported by Banks and Gold Dealers	..	..	..	..	..	1,659·80	32·47	..	..	..
		Total	..	**85·25**	**36,219·08**	**8,354·74**	..	**1,716·26**	**3,469·94**	**871,144·74**	**487,176·37**	**5,758·43**

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Cardinia ..	..	Voided leases	..	..	..	..	..	..	1,568·29	1,628·24	3,550·42	..
Diorite King ..	(1487c)	Artful Dodger	..	..	57·00	40·86	..	..	..	57·00	40·86	..
Do. ..	1459c	King of the Hills	..	..	224·00	148·56	..	..	44·49	790·00	1,085·14	24·05
Do. ..	..	Voided leases	..	..	..	..	..	..	774·66	32,550·53	29,612·75	..
Do. ..	..	Sundry claims	..	..	28·00	26·08	..	..	65·50	2,338·30	*2,836·30	..
Dodger's Well	..	Voided leases	..	..	..	..	..	..	57·90	1,299·30	1,927·94	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	3·37	786·25	644·95	..
Leonora ..	1473c	Auckland	..	..	..	..	..	..	..	226·50	82·22	..
Do. ..	198c	(Eastern)	..	..	..	..	..	..	..	302·00	321·72	..
Do. ..	1482c	Leonora Gold Blocks	..	..	..	4·10	..	..	10·15	223·50	249·35	..
Do. ..	(1479c), (1480c) ..	(Leonora Proprietary, Ltd.)	..	..	..	..	..	..	..	1,185·00	298·76	..
Do. ..	(1479c), (1480c) ..	Lloyd George G.M., Ltd.	..	..	..	44·02	..	..	..	600·00	154·82	..
Do. ..	1485c	Ping Pong	..	17·82	97·50	74·28	..	..	17·82	136·50	159·56	..
Do. ..	1486c	Rajah	..	39·09	24·00	125·40	..	..	87·81	60·00	287·71	..
Do. ..	190c, 198c, 207c, 352c, 353c, 380c, 446c, 447c, 450c, 476c, 489c, 490c, 504c, 523c, 741c, 742c, 807c, 809c, 811c, 812c, 813c, 814c, 980c, 981c, 1082c, 1225c, 1226c, 1227c, 1228c, 1229c, 1230c, 1231c, 1232c, 1259c, 1291c, 1292c, 1341c, 1342c, 1343c, 1344c, 1345c, 1346c, 1347c	Sons of Gwalia, Ltd.	..	..	141,962·00	54,834·50	4,702·54	..	..	2,148,338·50	1,055,214·87	57,603·45
Do. ..	198c, 1082c ..	(Sons of Gwalia South G.M. Co., N.L.)	..	..	..	..	..	..	..	631·00	903 61	..
Do. ..	198c, 1082c, (1257c), (1258c), 1259c, (1284c), (1285c), (1300c), (1301c)	(Sons of Gwalia South G.Ms., Ltd.) ..	..	..	..	..	..	..	..	98,239·00	51,593 99	8·66

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Mount Margaret Goldfield—*continued.*

MOUNT MALCOLM DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Leonora ..	198c, 1082c, 1259c	(Sons of Gwalia South G.Ms., Ltd.) ..	..	..	..	..	..	..	..	9,909·00	3,169·89	..
Do. ..	263c	(Trump)	..	..	..	..	..	..	..	562·50	2,393·40	..
Do. ..	263c	Trump : Gwalia Central G.Ms., Ltd. ..	..	..	78·00	214·63	..	..	..	608·00	2,279·86	..
Do. ..	263c, (774c), (793c)	(Trump leases)	..	..	..	..	..	..	..	21,794·45	16,002·07	..
Do. ..	..	Voided leases	..	..	..	..	..	..	1,661·47	129,821·50	61,672·47	10·71
Do. ..	..	Sundry claims	..	19·06	62·00	100·28	..	..	190·62	8,302·55	7,473·99	..
Malcolm ..	1175c	North Star : Malcolm Prospecting Co., N.L.	..	..	..	..	..	..	..	26,232·50	14,734·95	..
Do. ..	..	Voided leases	..	..	..	..	..	..	47·07	36,069·28	32,690·59	..
Do. ..	..	Sundry claims	..	..	49·50	31·19	..	..	8·88	2,981·90	2,085·85	..
Mertondale ..	..	Voided leases	..	..	..	..	..	..	..	88,663·00	60,840·00	1,497·58
Do. ..	..	Sundry claims	..	..	..	349·67	..	..	55·24	1,051·00	1,082·91	..
Mt. Clifford ..	1329c	Victory No. 1	..	..	4·00	676·07	..	..	..	645·46	6,498·29	..
Do. ..	..	Voided leases	..	..	..	..	..	..	1,364·45	3,265·50	6,996·22	..
Do. ..	..	Sundry claims	..	..	2·00	165·10	..	9·75	208·44	748·25	1,200·85	..
Pig Well ..	1295c	(Starlight)	..	..	..	..	..	..	..	181·50	695·73	..
Do. ..	1295c, 1324c, 1461c, 1475c	Starlight G.M. Syndicate, N.L. ..	..	..	..	..	..	..	..	151·00	151·44	..
Do. ..	1295c, 1324c ..	(Starlight leases)	..	..	..	..	..	..	..	75·50	235·87	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	12,982·07	13,538·20	63·68
Do. ..	..	Sundry claims	..	..	76·00	40·89	..	..	34·61	2,467·40	1,077·40	..
Randwick ..	1484c	Black Chief	..	4·12	9·00	12·01	..	..	4·12	13·00	20·04	..
Do. ..	1401c	Triangle	..	..	13·00	138·36	..	..	..	106·40	1,218·70	..
Do. ..	..	Voided leases	..	..	..	..	..	..	235·37	7,931·75	7,150·18	..
Do. ..	..	Sundry claims	..	5·52	17·75	16·56	..	66·57	111·18	1,264·10	906·80	..
Webster's Find	..	Voided leases	..	..	..	..	..	30·30	..	21,760·00	13,970·17	..
Do. ..	..	Sundry claims	..	..	..	..	..	36·37	15·73	1,365·30	916·47	..
Wilson's Creek	..	Voided leases	..	..	..	..	..	..	..	333·50	168·27	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	4·24	5·00	19·04	..
Wilson's Patch	..	Voided leases	..	..	..	..	..	..	99·38	26,348·10	12,475·57	1·05
Do. ..	..	Sundry claims	..	..	..	352·91	..	..	1·50	638·00	707·76	..

From District generally :												
Sundry Parcels treated at :												
Fremantle Trading Co.'s Works	..	..	..	..	..	..	..	..	..	1·42	..
King of the Hills Works	..	..	..	40·21	..	..	..	19·00	789·24	..
North Star Battery	..	..	..	..	..	..	..	..	431·53	..
Oratava Works—Kalgoorlie	..	..	..	..	..	..	..	..	15·90	..
Richmond Gem Works	..	..	..	..	..	..	..	..	10·83	..
State Battery—Leonora	..	..	..	..	..	..	..	95·50	10,132·98	98·14
State Battery—Pig Well	..	..	..	..	..	..	..	22·00	2,926·72	20·12
Various Works	..	..	..	..	..	..	..	330·50	2,929·50	..
Reported by Banks and Gold Dealers	19·84	..	..	..	..	2,301·83	131·00	..	..	..
Total	**19·84**	**85·61**	**142,703·75**	**57,485·68**	**4,702·54**	**2,444·82**	**6,803·29**	**2,696,136·13**	**1,438,576·07**	**59,327·44**

MOUNT MARGARET DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Burtville ..	1935T, 2005T, 2006T, 2016T	Amalgamated Westralia G.M. Co., N.L.	..	..	165·00	51·66	..	..	..	165·00	51·66	..
Do. ..	1935T	(Black Swan)	..	..	116·00	33·31	..	..	..	683·00	986·83	50·97
Do. ..	2034T	General Bridges	..	..	58·00	43·39	..	..	..	58·00	43·39	..
Do. ..	(1553T)	Golden Bell	..	..	200·00	10·30	..	..	..	2,686·00	6,953·87	..
Do. ..	2021T	(Joffre)	..	..	177·00	298·98	..	..	..	241·00	372·10	..
Do. ..	2021T	Joffre : Yilgarn Consols G.M. Co., Ltd.	..	..	120·00	67·63	..	..	..	120·00	67·63	..
Do. ..	1044T	Nil Desperandum	..	..	715·00	255·80	..	..	..	7,840·00	11,884·19	..
Do. ..	(1885T)	Nulla Nulla	..	..	..	..	..	..	22·20	422·00	492·90	..
Do. ..	1841T	Redeemed	..	25·43	116·00	111·61	..	..	247·40	1,108·00	1,375·96	..
Do. ..	..	Voided leases	..	..	..	..	..	2·29	130·28	52,167·18	78,640·14	224·30
Do. ..	..	Sundry claims	..	..	79·50	45·64	..	..	54·75	3,136·40	2,833·32	..
Duketon ..	1938T	Great Dolorite No. 1	..	178·11	22·00	100·42	..	3·54	1,233·58	39·00	160·44	..
Do. ..	2018T	Hemitite	..	94·65	24·50	52·26	..	..	94·65	24·50	52·26	..
Do. ..	2029T	Limonite	..	26·01	..	..	..	..	176·09	..	..	..
Do. ..	(1990T)	Mulga Queen Consols	..	..	137·00	100·93	..	..	..	720·00	858·61	..
Do. ..	..	Voided leases	..	..	..	..	..	..	542·68	30,585·00	20,910·03	..
Do. ..	..	Sundry claims	..	..	52·00	41·10	..	..	19·00	238·50	301·05	..
Eagle's Nest ..	..	Voided leases	..	..	..	..	..	..	145·34	331·00	1,215·78	..
Do. ..	..	Sundry claims	4·00	·43	..	..	..	4·00	·43	70·00	45·65	..
Erlistoun ..	..	Voided leases	..	..	..	..	..	..	11·66	27,012·07	18,461·35	..
Do. ..	..	Sundry claims	4·00	..	..	..	..	1,179·43	116·81	2,118·90	1,815·75	..

TABLE IV.—*Production of Gold and Silver from all Sources, etc.*—continued.

Mount Margaret Goldfield—*continued.*

MOUNT MARGARET DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Euro	1984T	Lone Star	..	..	330·00	116·90	..	..	..	2,640·00	686·96	..
Do. ..	..	Voided leases	..	..	..	..	..	..	65·14	83,964·25	35,957·12	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	243·00	109·31	..
Laverton ..	(371T)	(Augusta)	..	..	..	..	..	..	..	11,216·00	11,670·72	..
Do. ..	2058T	Augusta	..	..	29·00	11·44	..	..	..	29·00	11·44	..
Do. ..	371T ..	(Augusta : Golden Rhine G.Ms. (W.A.), Ltd.)	..	..	..	..	..	..	..	15,497·50	11,031·75	..
Do. ..	(371T), (1650T) ..	(Augusta G.M. Co., N.L.)	..	..	..	..	..	..	..	1,753·00	2,037·66	..
Do. ..	(371T), (1650T) ..	Augusta G.M. Co., N.L.	..	..	..	..	..	17·66	..	4,635·00	1,466·74	..
Do. ..	1918T	Bega	..	6·66	..	..	..	..	73·18	95·00	384·94	..
Do. ..	1999T	British Flag	..	125·76	72·00	105·04	..	..	468·97	211·25	1,030·22	..
Do. ..	1979T, 1985T ..	British Lion leases	..	2·62	80·75	22·56	..	..	2·62	355·75	65·14	..
Do. ..	1985T	(British Lion South)	..	..	..	..	..	..	..	95·50	38·83	..
Do. ..	2028T	Bulldog	..	..	155·50	152·93	..	..	..	287·50	336·27	..
Do. ..	(1994T)	Dulce Domum	..	..	75·75	6·50	..	..	..	75·75	6·50	..
Do. ..	838T	(General Wabash)	..	..	..	..	..	..	..	100·00	288·72	..
Do. ..	829T	(Ida H.)	..	..	..	..	..	..	..	111·00	285·13	..
Do. ..	829T, 838T, 846T, 1219T, 1310T, 1671T, 1894T	Ida H. G.M. Co., Ltd.	..	..	10,231·00	6,549·11	..	..	..	209,462·00	154,342·24	4,674·69
Do. ..	715T, 806T, 1206T, (1207T), (1483T), 1523T, 1524T, 1525T, 1542T, (1544T), (1548T)	(Kalgoorlie and Boulder Firewood Co., Ltd.)	..	..	21,079·00	7,985·81	863·06	..	..	71,802·00	25,003·11	3,364·01
Do. ..	1897T	(Lady Harriet)	..	..	..	..	..	..	..	991·00	98·94	..
Do. ..	715T, 806T, 1206T, (1207T), (1483T), 1523T, 1524T, 1525T, 1542T, (1544T), (1548T)	(Lancefield G.M. Co., Ltd.)	..	..	..	..	..	..	..	102,179·78	39,402·81	..
Do. ..	715T, 806T, 1206T, (1207T), (1483T), 1523T, 1524T, 1525T, 1542T, (1544T), (1548T)	(Lancefield G.M. Co., Ltd.)	..	..	..	..	..	..	..	153,829·00	58,842·47	5,824·39
Do. ..	715T, 806T, 1206T, (1207T), (1483T), 1523T, 1524T, 1525T, 1542T, (1544T), (1548T)	(Lancefield G.M. Co., Ltd.)	..	..	..	..	..	..	..	260,749·00	103,535·54	21,612·29

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916. Alluvial. Fine ozs.	Dollied and Specimens. Fine ozs.	Ore treated. Tons (2,240lbs.)	Gold therefrom. Fine ozs.	Silver. Fine ozs.	Total Production. Alluvial. Fine ozs.	Dollied and Specimens. Fine ozs.	Ore treated. Tons (2,240lbs.)	Gold therefrom. Fine ozs.	Silver. Fine ozs.
Do. ..	715T, 806T, 1206T, 1523T, 1524T, 1525T, 1542T	Lancefield Gold Mines, Ltd.	..	..	47,062·00	16,744·38	3,057·41	..	..	47,062·00	16,744·38	3,057·41
Do. ..	1897T, 1900T, 1948T, 1949T, 1950T, 1962T, 1974T, 1996T, 1997T	Mary Mac G.M. Co., N.L.	..	..	5,573·00	881·74	..	..	..	28,743·00	6,816·31	..
Do. ..	2061T	Mistico	..	..	60·00	39·55	..	..	..	60·00	39·55	..
Do. ..	1949T	(Pinnacles)	..	..	..	..	..	..	..	96·00	36·51	..
Do. ..	(2036T)	Queen Mary	..	..	..	..	..	..	..	88·00	15·26	..
Do. ..	..	Voided leases	..	..	..	..	..	..	1,313·80	146,488·60	51,408·90	..
Do. ..	..	Sundry claims	..	43·92	134·25	212·79	..	46·35	1,118·95	3,615·45	3,337·25	..
Mt. Barnicoat	..	Voided leases	..	..	..	..	..	..	..	652·00	359·12	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	23·00	23·37	..
Quartz Hill ..	..	Voided leases	..	..	..	..	..	..	..	10·00	3·86	..
Red Hill ..	..	Sundry claims	..	..	..	..	..	..	..	27·00	13·76	..
	From District generally:—											
	Sundry Parcels treated at:											
	Brown Hill Consols Works—Kalgoorlie		..	..	..	..	..	..	..	..	13·70	..
	Craiggiemore Works		..	..	..	..	..	..	..	..	110·28	..
	Mulga Queen Works		..	..	..	38·54	..	..	..	..	178·93	..
	State Battery—Burtville		..	..	..	..	..	..	..	62·00	6,422·71	..
	State Battery—Laverton		..	..	28·00	15·75	..	..	..	77·50	1,577·77	..
	Various Works		..	..	..	..	..	..	..	89·00	2,944·94	..
	Reported by Banks and Gold Dealers		23·56	..	..	..	..	1,941·17	..	..	..	..
		Total	31·56	503·59	86,892·25	34,096·07	3,920·47	3,194·44	5,837·53	1,277,181·38	684,202·07	38,808·06

North Coolgardie Goldfield.

MENZIES DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916. Alluvial. Fine ozs.	Dollied and Specimens. Fine ozs.	Ore treated. Tons (2,240lbs.)	Gold therefrom. Fine ozs.	Silver. Fine ozs.	Total Production. Alluvial. Fine ozs.	Dollied and Specimens. Fine ozs.	Ore treated. Tons (2,240lbs.)	Gold therefrom. Fine ozs.	Silver. Fine ozs.
Comet Vale ..	5431z, 5432z, 5434z	Edna May Golden Point, N.L. ..	..	..	94·00	12·24	..	..	..	94·00	12·24	..
Do. ..	5217z	(Gladsome)	..	..	..	..	..	..	..	10,879·50	8,678·16	95·29
Do. ..	5217z, 5333z, 5380z	Gladsome leases	..	..	8,200·00	5,887·97	168·10	..	..	49,120·00	35,969·47	1,142·52
Do. ..	5300z	(Happy Jack)	..	..	..	..	..	..	..	1,363·50	776·10	..
Do. ..	5300z, 5325z ..	Happy Jack leases	..	..	47·00	14·44	..	..	..	7,341·50	3,804·86	..
Do. ..	5325z	(Iron King)	..	..	..	..	..	..	..	41·50	20·62	..
Do. ..	5410z	Lake View	..	..	..	..	..	..	..	186·82	74·11	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued

North Coolgardie Goldfield—*continued.*

MENZIES DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Comet Vale ..	5312z	(Sand King)	..	..	..	..	..	..	..	35·50	30·33	..
Do. ..	5211z	(Sand Queen)	..	..	..	..	..	..	..	3,436·75	3,639·12	2·00
Do. ..	(5208z), 5211z, 5224z, 5320z	(Sand Queen G.Ms., Ltd.)	..	..	..	..	..	..	..	6,803·50	2.949·83	..
Do. ..	5211z, 5224z, 5312z, 5320z	Sand Queen G.Ms., Ltd.	..	..	16,586·00	11,418·80	1,283·96	..	..	97,014·62	83,698·35	1,936·75
Do. ..	..	Voided leases	..	..	..	..	..	..	409·70	9,960·60	5,513·14	2·00
Do. ..	..	Sundry claims	..	..	..	..	..	..	31·91	614·75	423·69	..
Goongarrie ..	5414z	New Boddington	..	..	259·70	1,467·08	..	..	191·83	412·70	1,785·68	..
Do. ..	..	Voided leases	..	..	..	..	..	·94	446·13	14,905·29	9,878·41	..
Do. ..	..	Sundry claims	5·79	8·22	8·50	3·67	..	33·72	115·73	764·35	615·83	..
Menzies ..	5433z	Alpha	..	..	85·00	36·96	..	..	..	85·00	36·96	..
Do. ..	5354z	Balkis	..	..	..	..	..	..	..	2,615·25	2,370·59	..
Do. ..	(5409z)	Black Jack	..	..	..	..	..	..	..	462·25	210·52	..
Do. ..	(5377z)	Coronation	..	..	21·00	16·61	..	..	..	692·25	571·26	..
Do. ..	5440z	Crusoe North	..	..	117·00	104·51	..	..	..	117·00	104·51	..
Do. ..	(5416z)	Flying Fish South	..	..	149·75	150·30	..	..	..	650·00	521·73	..
Do. ..	(5420z)	Goodenough	..	..	21·00	4·71	..	..	..	58·25	34·38	..
Do. ..	5302z	Lady Harriet	..	..	..	..	..	..	6·15	3,738·00	3,829·00	..
Do. ..	(5424z)	Lady Martha	..	..	23·50	11·24	..	..	..	100·50	114·83	..
Do. ..	5423z	Lady Shenton	..	..	1,146·00	660·29	..	..	..	2,268·75	1,429·53	..
Do. ..	4931z, 4934z, 4935z, 4936z, 5074z, 5075z, 5260z, 5261z, 5315z	Menzies Consolidated G.Ms., Ltd. ..	..	..	25,890·00	14,133·56	..	..	..	361,861·00	194,848·14	78·67
Do. ..	(2832z), (2844z), 3100z, (3138z), (4966z), 5392z	Menzies Mining and Exploration Corporation, Ltd.	..	..	201·00	133·62	..	..	..	26,340·25	29,943·03	..
Do. ..	(5359z)	No Name	..	..	42·50	17·65	..	..	..	1,205·50	514·05	..
Do. ..	5392z	(Revival)	..	..	..	..	..	..	..	22·50	5·90	..
Do. ..	2823z	Robinson Crusoe	..	..	396·50	258·03	..	..	13·24	3,965·75	2,049·19	..
Do. ..	2823z	(Robinson Crusoe : Crusoe Gold Claims, Ltd.)	..	..	..	..	..	..	..	33,135·00	32,978·74	1,038·47
Do. ..	(5318z)	Surprise	..	..	..	..	..	..	480·50	318·25	918·40	..
Do. ..	..	Voided leases	..	..	..	..	..	45·42	549·15	296,794·96	347,401·71	10,224·59
Do. ..	..	Sundry claims	..	..	266·50	778·31	..	6·69	346·61	15,907·75	11,177·06	..

Mt. Ida ..	5250z	Forest Belle	..	..	342·00	242·51	..	..	..	4,526·00	3,963·46	..
Do. ..	(5382z)	Mt. Ida West	..	..	..	..	..	..	..	398·00	611·78	..
Do. ..	(5177z)	Unexpected	..	..	7·00	7·86	..	..	..	4,972·00	8,650·23	..
Do. ..	5290z	Unexpected South	..	..	14·00	11·87	..	..	..	1,136·00	714·65	8·25
Do. ..	5290z, (5329z), (5381z)	(Unexpected South leases) ..	..	..	..	..	..	..	..	4,524·00	8,179·29	35·64
Do. ..	5292z	Wild Rose	..	..	114·79	80·98	..	..	..	1,116·79	901·98	..
Do. ..	..	Voided leases	..	..	..	..	..	..	77·07	38,936·58	43,696·32	62·74
Do. ..	..	Sundry claims	..	..	215·00	34·00	..	..	9·57	4,144·50	2,571·77	..
		From District generally :—										
		Sundry Parcels treated at :										
		Balkis Battery	..	..	..	369·37	..	..	..	33·25	2,677·60	..
		Crusoe Wedderburn Cyanide Works	..	..	..	178·21	..	..	..	..	1,497·89	..
		Fremantle Trading Co., Ltd.	..	..	..	..	..	..	..	..	212·98	..
		Lady Harriet Battery	..	..	138·00	643·24	..	..	..	232·50	2,091·07	..
		Menzies Mining and Exploration Corporation, Ltd., Works	..	..	..	..	..	..	..	639·50	732·04	..
		Menzies Residue Plant	..	..	..	..	..	..	..	..	120·22	..
		Mt. Ida Meteor Works	..	..	..	60·45	..	..	..	..	1,916·49	..
		State Battery—Menzies	..	..	..	..	..	..	..	1,043·50	15,128·71	916·50
		State Battery—Mt. Ida	..	..	..	..	..	..	..	1,842·25	4,484·34	..
		Various Works	..	..	..	..	..	..	..	763·55	6,476·45	122·93
		Reported by Banks and Gold Dealers	3·86	..	..	..	..	894·96	195·48	..	..	..
		Total	**9·65**	**8·22**	**54,385·74**	**36,738·48**	**1,452·06**	**981·73**	**2,873·07**	**1,017,621·51**	**891,556·74**	**15,666·35**

ULARRING DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Davyhurst ..	459u	(Golden Pole)	..	..	..	..	..	..	..	34·00	47·51	..
Do. ..	459u	Golden Pole	..	..	41·25	26·52	..	..	..	202·75	137·10	..
Do. ..	459u, (461u), (468u), (484u), (786u), (873u)	(Golden Pole G.Ms., Ltd.)	..	..	..	..	..	..	..	74,110·90	71,961·09	..
Do. ..	459u, (461u), (468u)	(Golden Pole G.Ms., Ltd.)	..	..	..	..	..	..	..	3,344·00	2,298·79	..
Do. ..	459u, (461u), (468u), (484u)	(Golden Pole G.Ms., N.L.)	..	..	..	..	..	..	..	970·00	2,321·69	..
Do. ..	(882u)	(Lady Ellen)	..	..	..	..	..	..	20·33	824·25	1,201·89	..
Do. ..	(882u), (965u) ..	Lady Ellen leases	..	..	19·00	5·39	..	..	..	38·00	14·36	..
Do. ..	972u	Little Dele	..	..	2,608·00	271·73	..	..	..	2,608·00	271·73	..
Do. ..	..	Voided leases	..	..	..	..	..	2·93	118·66	67,222·08	44,308·83	5,403·14
Do. ..	..	Sundry claims	..	..	342·00	103·55	..	..	30·12	5,640·35	2,962·66	..
Diemels Find	..	Sundry claims	..	..	..	..	..	..	7·37	102·50	119·13	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

North Coolgardie Goldfield – *continued.*

ULARRING DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Mulline ..	955U	Belle Maie	..	..	62·25	16·72	..	..	..	199·50	313·38	..
Do. ..	139U, 235U, (555U), (670U), (671U), (679U), (732U), (862U)	(Lady Glady's G.M. Co., N.L.) ..	..	..	..	..	..	..	..	16,871·50	17,777·42	..
Do. ..	139U, 235U, (555U), (670U)	(Lady Glady's G.M. Co., N.L.) ..	..	..	..	..	..	..	..	1,220·50	512·52	..
Do. ..	139U, 235U, (555)	(Lady Glady's leases) ..	..	..	..	..	..	..	170·89	7,741·00	15,025·05	..
Do. ..	139U, 235U, (555U,) (670U)	Lady Glady's leases	..	..	90·25	47·42	..	..	..	973·50	475·83	..
Do. ..	(123U)	Riverina	..	..	..	..	..	..	..	6,552·00	3,438·67	..
Do. ..	(123U), (773U) ..	(Riverina G.M. Co., N.L.)	..	..	..	..	..	..	..	11,254·00	7,096·21	..
Do. ..	324U, 600U, 730U, 969U, 970U, 974U, 975U	Riverina South G.M. Co., N.L. ..	..	..	710·00	721·35	104·80	..	..	710·00	721·35	104·80
Do. ..	324U, 600U, 730U	(Riverina South leases) ..	..	..	700·00	245·79	..	..	43·87	18,480·50	13,442·65	..
Do. ..	763U	Young Australian	..	..	135·25	191·84	..	..	..	279·50	398·69	..
Do. ..	763U	(Young Australian)	..	..	..	..	..	..	..	1,295·00	3,609·26	..
Do. ..	763U, (938), (939U)	(Young Australian leases) ..	..	..	..	..	..	..	..	2,672·25	5,763·88	..
Do. ..	..	Voided leases	..	..	..	..	..	..	59·33	21,750·72	23,111·39	2·71
Do. ..	..	Sundry claims	..	..	414·25	242·53	..	..	35·53	5,226·75	4,322·43	·69
Mulwarrie ..	919U	Mulwarrie	..	..	..	..	..	..	..	627·50	392·15	..
Do. ..	979U	Mulwarrie Main Reef	..	..	83·25	81·15	..	..	..	83·25	81·15	..
Do. ..	..	Voided leases	..	..	..	..	..	..	56·84	17,641·64	25,030·68	26·37
Do. ..	..	Sundry claims	..	..	22·25	40·37	..	..	19·24	1,961·00	1,681·67	..
Ularring ..	954U	Cardinal	..	25·43	91·25	134·34	..	..	36·71	420·00	531·61	..
Do. ..	..	Voided leases	..	..	..	..	..	..	526·63	8,963·85	13,051·86	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	143·00	113·15	..
		From District generally :—										
		Sundry Parcels treated at :										
		Expansion Battery	..	..	32·00	44·97	..	..	..	96·50	188·65	..
		Hannans Central Battery—Kalgoorlie	..	..	18·40	4·66	..	..	..	18·40	4·66	..
		Oratava Works—Kalgoorlie	..	..	..	..	..	..	..	..	54·39	..
		State Battery—Mulline	..	..	..	125·39	..	..	..	494·00	12,646·88	..
		State Battery—Mulwarrie	..	..	..	660·51	..	..	..	595·20	4,135·36	..
		Various Works	..	..	..	..	..	..	15·82	90·25	411·33	..
		Reported by Banks and Gold Dealers	..	..	..	..	..	18·53	·77	..	..	..
		Total	..	**25·43**	**5,369·40**	**2,964·23**	**104·80**	**21·46**	**1,142·11**	**281,458·14**	**279,977·05**	**5,537·71**

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Desdemona ..	..	Voided leases	..	..	..	..	..	..	5·73	9,585·25	7,471·39	12·04
Do. ..	..	Sundry claims	..	..	..	..	..	..	8·99	1,331·70	634·19	..
Kookynie ..	772G	Carpathia	..	..	95·00	25·21	..	..	..	95·00	25·21	..
Do. ..	320G	Champion	..	..	85·00	161·22	..	..	..	20,315·00	10,046·15	2·28
Do. ..	320G	(Champion: Champion Proprietary, Ltd.)	..	..	..	..	..	..	..	36,310·00	18,381·09	425·32
Do. ..	320G, (335G), (347G)	(Champion leases)	..	..	..	..	..	..	..	2,157·50	2,554·15	..
Do. ..	320G, (335G), (347G)	(Champion leases: Guthrie & Co., Ltd.)	..	..	..	..	..	..	..	2,705·00	1,556·16	..
Do. ..	756G	(Cosmopolitan No. 1: Cosmopolitan Proprietary, Ltd.)	..	..	..	..	..	..	..	578·00	793·00	..
Do. ..	756G	Cosmopolitan No. 1: Western Machinery Coy., Ltd.	..	..	34·59	25·08	..	..	..	240·59	242·31	..
Do. ..	757G	(Cosmopolitan No. 2: Cosmopolitan Proprietary, Ltd.)	..	..	..	..	..	..	..	710·00	909·66	..
Do. ..	757G	Cosmopolitan No. 2: Western Machinery Co., Ltd.	..	..	809·00	717·82	..	..	..	2,336·00	2,831·09	..
Do. ..	769G	Two "Ds."	..	..	100·00	14·01	..	..	..	100·00	14·01	..
Do. ..	..	Voided leases	..	..	..	..	..	..	257·33	666,943·97	349·511,68	4,948·37
Do. ..	..	Sundry claims	..	..	88·50	76·01	..	30·59	74·79	4,016·00	4,014·67	..
Niagara ..	768G	Justice Extended	..	..	134·00	166·96	..	..	..	171·50	201·26	..
Do. ..	..	Voided leases	..	..	..	..	..	..	104·54	84,018·00	51,600·01	..
Do. ..	..	Sundry claims	..	..	245·00	149·10	..	13·27	70·23	8,981·25	5,584·82	..
Tampa ..	..	Voided leases	..	..	..	..	..	..	15·66	49,271·87	22,173·80	174·24
Do. ..	..	Sundry claims	..	..	286·00	295·08	..	5·07	4·37	3,072·00	1,816·92	..
		From District generally:—										
		Sundry Parcels treated at:										
		Grafter Battery	..	..	..	22·08	..	..	..	82·00	317·86	..
		State Battery—Niagara	..	..	..	117·20	..	..	..	622·50	8,703·09	..
		Various Works	..	..	..	..	..	..	..	451·00	6,356·43	41·17
		Reported by Banks and Gold Dealers	20·24	..	..	..	..	1,417·15	787·38	..	..	..
		Total	**20·24**	..	**1,877·09**	**1,769·77**	..	**1,466·08**	**1,329·02**	**894,094·13**	**495,758·95**	**5,603·42**

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

North Coolgardie Goldfield—*continued.*

YERILLA DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Edjudina ..	1046R	Admiral Jellico	..	..	41·00	31·59	..	..	..	41·00	31·59	..
Do. ..	994R	Digger	..	..	..	..	..	..	..	97·50	76·06	..
Do. ..	1018R	Neta Extended	..	..	140·50	173·85	..	..	..	418·25	512·73	..
Do. ..	1010R, 1011R ..	Neta leases	..	..	..	..	..	..	..	246·00	165·20	..
Do. ..	1015R	Senate	..	..	330·00	575·86	..	..	..	721·00	932·43	..
Do. ..	(1026R)	Two Jacks	..	..	..	..	..	..	..	166·50	42·52	..
Do. ..	..	Voided leases	..	..	..	..	..	..	14·06	29,213·59	38,860·01	37·79
Do. ..	..	Sundry claims	..	..	94·00	99·41	..	..	21·26	2,695·50	2,272·47	..
Eucalyptus ..	..	Voided leases	..	..	..	..	..	..	2,864·77	1,351·35	3,020·68	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	367·50	362·50	381·82	..
Linden ..	998R	Bindah	..	..	..	..	..	..	..	1,462·50	531·95	..
Do. ..	871R	Democrat	..	..	202·50	405·90	..	..	9·01	2,162·75	4,760·08	..
Do. ..	1040R	Great Billjim	..	..	32·75	19·36	..	..	..	32·75	19·36	..
Do. ..	1024R	Great Carbine	..	..	..	..	..	..	..	67·75	20·30	..
Do. ..	942R	Great Junction	..	..	70·50	82·48	..	..	6·11	1,055·25	996·78	..
Do. ..	971R	Linden Star	..	..	39·50	106·68	..	..	22·00	197·25	329·40	..
Do. ..	1005R	Olympic	..	..	176·25	81·32	..	..	..	442·50	655·11	..
Do. ..	(1036R)	Reward	..	..	30·25	13·81	..	..	..	84·25	58·87	..
Do. ..	903R, 985R ..	Torquay leases	..	..	95·75	18·60	..	..	..	95·75	18·60	..
Do. ..	903R, (904R), 985R, (992R)	(Westralia United Goldfields, Ltd.)	..	..	..	..	..	..	..	1,995·00	1,452·42	..
Do. ..	..	Voided leases	..	..	..	..	..	7·53	516·04	11,628·35	14,446·85	..
Do. ..	..	Sundry claims	..	..	297·75	244·88	..	77·81	35·11	6,365·75	4,688·40	..
Mt. Celia ..	..	Voided leases	..	..	..	..	..	..	..	14·00	5·39	..
Mt. Howe ..	..	Sundry claims	..	..	..	..	..	..	..	5·00	11·13	..
Mt. Remarkable	..	Voided leases	..	..	..	..	..	..	17·74	528·72	415·09	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	4·00	1·32	..
Pinjin ..	(729R)	Anglo Saxon	..	..	362·00	197·76	..	..	..	6,675·90	5,411·64	..
Do. ..	..	Voided leases	..	..	..	..	..	..	46·99	7,961·90	4,895·04	..
Do. ..	..	Sundry claims	..	..	99·00	75·79	..	..	99·36	3,334·35	2,236·29	..
Yarri ..	(947R)	Dostmund West	..	..	..	..	..	..	..	467·00	633·60	..
Do. ..	581R	Yarri Proprietary	..	..	166·00	48·66	..	..	41·36	12,573·50	4,337·80	..
Do. ..	..	Voided leases	..	..	..	..	..	6·30	45·72	23,636·25	14,125·01	2·00
Do. ..	..	Sundry claims	..	..	81·50	72·33	..	..	5·31	5,124·10	2,738·08	..

Yerilla ..	..	Voided leases	..	..	..	..	..	..	..	3,089·51	15,619·21	12,313·06	13·93
Do. ..	..	Sundry claims	..	..	149·00	73·53	..	19·30	15·88	2,375·00	1,323·59	..	
Yilgangie ..	..	Voided leases	..	..	..	..	..	..	..	218·75	295·45	..	
Do. ..	..	Sundry claims	..	..	..	..	..	121·67	29·83	25·50	46·17	..	
					..	..	..	..	..	..	..	..	
Yundamindera	1041R	Queen of the May	..	..	441·50	451·33	..	..	..	441·50	451·33	..	
Do. ..	..	Voided leases	..	..	..	..	..	..	80·47	68,532·60	45,484·66	5·82	
Do. ..	..	Sundry claims	..	..	305·75	264·43	..	..	85·22	3,083·25	2,695·23	..	
		From District generally :—											
		Sundry Parcels treated at :—											
		Battles Ville Battery	..	..	..	97·00	..	..	..	..	399·46	..	
		Fremantle Trading Coy's. Works	..	..	..	..	..	..	..	..	4·92	..	
		Neta Battery	..	..	..	39·61	..	..	..	..	325·69	..	
		State Battery—Linden	..	..	..	11·23	..	..	..	72·00	3,979·37	..	
		State Battery—Pinjin	..	..	..	12·80	..	..	..	125·50	1,278·16	..	
		State Battery—Yarri	..	..	..	360·05	..	..	..	231·50	4,167·59	3·50	
		State Battery—Yerilla	..	..	..	44·70	..	2·17	..	72·00	1,257·22	..	
		Various Works	..	..	..	..	..	..	..	660·85	3,999·04	..	
		Reported by Banks and Gold Dealers	7·59	..	..	..	..	1,011·56	154·74	..	..	..	
		Total	**7·59**	..	**3,155·50**	**3,602·96**	..	**1,246·34**	**7,567·99**	**212,685·42**	**187,104·96**	**63·04**	

Broad Arrow Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Bardoc ..	(1770w)	Canopus	..	..	.. ..	..	..	..	..	162·00	37·93	..
Do. ..	(1756w)	Gabatepe	..	..	..	..	..	..	..	76·85	94·53	..
Do. ..	1773w	Hillside	..	36·57	17·60	94·16	..	..	85·66	29·10	127·53	..
Do. ..	1743w	Zoroastrian	..	350·87	..	..	..	..	350·87	48·14	58·59	..
Do. ..	..	Voided leases	..	..	..	..	..	..	256·68	72,732·23	50,743·17	203·60
Do. ..	..	Sundry claims	..	202·07	58·66	375·18	..	..	501·88	2,839·46	2,438·16	..
					..	..	..	..	..	..	..	..
Black Flag ..	1783w	New Lady Bountiful	..	..	68·25	28·39	..	..	..	68·25	28·39	..
Do. ..	1778w	Suvla Bay	..	..	25·00	5·15	..	..	..	25·00	5·15	..
Do. ..	..	Voided leases	..	..	..	..	..	27·81	373·99	40,097·88	24,382·92	..
Do. ..	..	Sundry claims	..	..	57·80	62·22	..	686·51	165·78	1,971·06	1,848·31	..
Broad Arrow	1744w	Arrow Star	..	1·51	..	..	..	..	84·78	22·41	163·15	..
Do. ..	1771w	North Duke	..	32·10	60·80	242·00	..	..	61·88	60·80	242·00	..
Do. ..	1772w	Oversight	..	400·50	292·30	1,158·48	..	..	1,083·30	292·30	1,158·48	..
Do. ..	(1707w)	Pearl	..	..	..	..	..	..	18·61	44·80	47·14	..
Do. ..	1794w	Railway	..	..	16·00	6·66	..	..	..	16·00	6·66	..
Do. ..	1735w	Tara	..	676·18	37·80	195·56	..	..	676·18	152·40	758·42	..
Do. ..	(1745w)	Yellow Jacket	..	..	..	..	..	..	..	506·45	245·62	..
Do. ..	..	Voided leases	..	..	..	..	..	54·85	1,127·20	116,448·53	95,167·71	15·85
Do. ..	..	Sundry claims	..	99·40	485·10	764·33	..	967·96	1,172·33	7,394·75	5,421·33	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Broad Arrow Goldfield—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Carnage ..	1795w	Shepherd King	..	..	18·00	166·45	..	..	..	18·00	166·45	..
Paddington ..	1733w	Mount Eddy	..	..	314·00	151·67	..	..	..	381·50	560·88	..
Do. ..	1747w	Mt. Eddy Extended	..	..	523·00	48·59	..	..	..	637·65	173·90	..
Do. ..	..	Voided leases	..	..	..	..	..	5,557·72	257·75	173,488·87	81,244·97	18·96
Do. ..	..	Sundry claims	..	..	104·88	74·54	..	1,714·16	..	10,156·36	6,530·13	..
Siberia ..	1399w, 1424w, 1429w, 1442w, 1655w	Associated Northern Blocks (W.A.), Ltd.	..	..	26,698·00	12,673·95	..	..	..	189,816·09	62,135·47	1,664·70
Do. ..	1781w	Blue Streak	..	..	132·25	78·40	..	..	..	132·25	78·40	..
Do. ..	(1722w)	Bonnie Doon	..	..	141·75	56·57	..	..	..	214·50	187·93	..
Do. ..	1774w	Christmas Lone Hand	..	..	39·00	187·70	..	..	..	39·00	187·70	..
Do. ..	(1739w)	Gimlet Consols	..	..	..	..	..	..	..	24·00	3·02	..
Do. ..	(1748w)	Gimlet Duke	..	..	38·50	10·50	..	..	..	172·00	30·73	..
Do. ..	1371w	Gimblet South	..	..	15,028·00	1,594·43	..	..	..	68,552·50	11,397·58	..
Do. ..	1399w	(Gimblet South Extended) ..	..	..	..	..	..	..	..	525·00	835·44	..
Do. ..	1399w, 1424w, 1429w, 1442w	(Gimblet South Extended leases)	..	..	..	..	..	..	..	215·00	39·98	..
Do. ..	1338w	(Gimblet West)	..	..	..	..	..	..	..	680·50	482·83	..
Do. ..	(1286w), 1403w..	Golden leases	..	..	..	..	..	..	374·82	205·73	538·82	..
Do. ..	(1358w)	Golden Mount	..	1·50	..	..	..	..	5·76	1,759·50	987·35	..
Do. ..	1289w, 1308w ..	Lady Evelyn leases	..	..	683·00	446·69	..	..	25·26	5,376·25	5,267·70	..
Do. ..	1293w	Mexico	..	..	21·00	28·96	..	..	..	270·50	314·20	..
Do. ..	1293w, (1298w) ..	(Mexico leases)	..	..	..	..	..	..	..	457·00	999·75	..
Do. ..	1403w	Nuggety Hill	..	25·48	..	..	..	..	25·48	65·50	19·98	..
Do. ..	1736w	Pole	..	..	..	..	..	..	..	60·00	15·62	..
Do. ..	1789w ..	Siberia	..	30·60	..	..	..	..	30·60	..	..	..
Do. ..	1375w	(Siberia Consols)	..	..	..	..	..	..	41·58	1,013·50	3,136·03	..
Do. ..	1375w	Siberia Consols	..	..	423·25	832·09	..	..	..	423·25	832·09	..
Do. ..	1375w, (1610w), (1720w)	(Siberia Consols G.M. Co., N.L.) ..	..	..	..	..	..	..	39·23	352·50	598·52	..
Do. ..	1336w	(Slippery Gimblet)	..	..	..	..	..	..	..	26,110·50	8,217·79	..
Do. ..	1336w, 1338w, (1419w)	Slippery Gimblet leases.. ..	..	..	..	..	..	..	..	4,697·00	1,774·52	..
Do. ..	..	Voided leases	..	..	..	..	..	..	256·20	20,177·18	8,994·85	..
Do. ..	..	Sundry claims	..	131·99	278·90	414·10	..	126·49	537·09	5,462·42	6,169·21	..
Smithfield ..	..	Voided leases	..	..	..	..	..	..	..	1,027·00	200·90	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	23·79	49·50	149·47	..

From Goldfield generally :—											
Sundry Parcels treated at :											
Brown Hill Consols Works—Kalgoorlie	..	..	..	..	..	..	..	..	38·99	15·32	..
Fremantle Trading Coy's. Works	..	..	..	..	..	..	..	..	..	80·10	..
Hannans' Central Works—Kalgoorlie	..	..	..	..	..	..	..	..	8·70	15·47	..
Northey's Venture Works	..	..	..	..	..	..	..	..	..	613·24	..
Pole Works	..	..	..	..	..	..	..	..	..	356·07	..
Regan's Carnage Battery	..	..	..	..	..	..	..	..	27·00	598·81	..
State Battery—Ora Banda	..	..	..	..	..	399·17	..	..	27·00	627·72	..
State Battery—Siberia	..	..	..	..	..	..	..	..	40·00	746·57	..
Zoroastrian Works	..	..	..	..	..	..	..	..	116·50	1,082·23	..
Various Works	..	..	..	..	..	..	2,271·17	..	16,622·68	31,147·67	278·85
Cement from Alluvial Claims at Paddington	..	..	..	..	..	..	..	..	49·95	6·61	..
Cement from Alluvial Claims at Siberia	..	..	..	259·85	57·51	..	..	..	988·10	177·87	..
Reported by Banks and Gold Dealers	..	..	73·70	..	..	..	7,512·00	..	..	..	..
Total	..	..	**73·70**	**1,988·77**	**45,822·69**	**20,153·45**	..	**18,918·67**	**7,576·70**	**773,467·88**	**420,715·08**	**2,181·96**

North-East Coolgardie Goldfield.

KANOWNA DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Black Swan	..	Voided leases	..	..	..	..	..	..	..	160·00	141·76	..
Gambier	..	Voided leases	..	..	..	..	..	..	38·73	12,729·00	6,638·30	·07
Do.	..	Sundry claims	..	..	..	..	..	24·70	245·94	858·75	750·42	..
Gindalbie	..	Voided leases	..	..	..	..	..	..	19·94	43,605·08	39,435·32	38·31
Do.	..	Sundry claims	..	..	..	..	..	..	674·82	1,017·75	1,207·80	..
Gordon	.. 1365x	Red, White, and Blue	..	18·16	25·00	28·78	..	..	18·16	25·00	28·78	..
Do.	.. 891x	(Sirdar)	..	..	..	..	..	..	32·60	168·50	1,319·35	..
Do.	.. 891x	Sirdar	..	..	160·00	756·56	..	..	12·32	2,855·00	3,005·07	..
Do.	.. 891x, (1222x), (1223x), (1229x)	(Sirdar G.M. Co., Ltd.)	..	..	..	..	..	..	..	35,988·00	5,759·77	..
Do.	.. ..	Voided leases	..	..	..	..	..	..	205·17	1,570·80	1,074·78	..
Do.	.. ..	Sundry claims	..	..	..	..	..	..	54·65	630·50	577·80	..
Kanowna	.. 1362x	Becks' Reward	..	..	492·00	215·67	..	..	..	492·00	215·67	..
Do.	.. 1358x	Dreadnought	..	..	27·00	3·49	..	..	..	77·00	5·51	..
Do.	.. 1019x	Kanowna	..	..	264·00	157·56	..	..	691·94	7,832·50	9,500·13	..
Do.	.. 1299x	Kanowna Consols	..	..	..	..	..	..	..	713·50	129·30	..
Do.	.. 1353x	Leila M.	..	..	61·00	38·85	..	..	..	100·00	81·33	..
Do.	.. 18x, (19x) ..	(Lily Australis G.Ms., Ltd.)	..	..	..	..	..	..	..	197·00	119·18	..
Do.	.. (1359x)	Lord Kitchener	..	..	75·00	79·37	..	..	..	75·00	79·37	..
Do.	.. 1295x	Louisa	..	..	58·00	21·48	..	..	48·09	707·00	232·73	3·31
Do.	.. 1364x	Mascotte	..	..	167·50	160·78	..	..	..	198·50	224·69	..
Do.	.. (3x), 14x, 15x, 18x, (19x), (60x), (81x), (938x), 974x, 1035x, (1103x), (1263x)	(North White Feather G.Ms., Ltd.) ..	..	..	..	..	..	..	..	147,974·75	74,343·01	159·19

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

North-East Coolgardie Goldfield—*continued.*

KANOWNA DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Kanowna ..	14x, 15x, 18x, (19x), 974x, 1035x, (1103x), (1263x), (1276x), 1278x	(North White Feather G.Ms., Ltd.) ..	..	..	..	..	..	..	..	37,768·50	10,594·79	..
Do. ..	12x, 13x, 14x, 15x, 18x, (19x), (72x), 855x, 974x, 1035x, (1103x), (1263x), 1278x	North White Feather G.Ms., Ltd. ..	..	..	7,806·00	3,019·92	..	..	..	45,910·90	20,744·32	..
Do. ..	1330x	Robinson	..	..	280·00	263·51	..	..	..	3,202·00	2,471·62	..
Do. ..	1300x	Sunset	..	..	9·00	10·49	..	..	2·27	1,248·50	638·41	..
Do. ..	12x, 13x, 14x, 15x, 855x, (1001x), (1012x), (1103x), (1107x), (1108x), (1109x)	(White Feather Main Reefs, Ltd.) ..	..	..	..	..	..	..	..	123,327·56	82,334·52	1,675·68
Do. ..	(9x), (10x), 12x, 13x, (72x), (83x), (201x), 855x, (1001x), (1012x), (1108x), (1249x)	(White Feather Main Reefs, (1906) Ltd.)	..	..	..	..	..	..	20·45	24,393·00	9,138·31	..
Do. ..	..	Voided leases	..	..	..	..	..	3·59	3,615·98	238,787·46	132,550·92	644·06
Do. ..	..	Sundry claims	..	..	142·50	84·78	..	88·95	1,355·29	12,675·56	6,177·84	1·50
Mulgarrie ..	1355x	Palm	..	..	238·00	187·61	..	..	..	777·00	595·83	..
Do. ..	(1297x)	Valentine	..	..	..	..	..	..	3·43	226·51	249·42	..
Do. ..	..	Voided leases	..	..	..	..	..	..	1,213·20	4,658·75	2,574·91	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	13·29	795·00	495·38	..
Six-Mile ..	..	Voided leases	..	..	..	..	..	..	1,595·63	559·00	767·72	..
Do. ..	..	Sundry claims	..	..	12·00	1·71	..	..	31·44	117·50	84·79	..
		From District generally :—										
		Sundry parcels treated at :										
		Kalgoorlie Foundry, Ltd., Works	..	..	..	..	..	..	..	..	553·56	..
		Lady Pratt Works	..	..	16·00	6·85	..	..	..	16·00	277·83	..
		Old Cement Works	..	..	..	1,147·53	..	..	..	70·00	9,891·43	..
		Reidel and Norton's Works	..	..	..	74·73	..	..	..	642·00	2,083·74	..
		South Gippsland Cyanide Works	..	..	..	..	..	..	..	..	356·20	..
		Various works	..	..	..	..	..	25·01	..	903·10	22,775·21	..
		Total for Leases and Quartz claims ..	..	18·16	9,833·00	6,259·67	..	142·25	9,893·34	754,053·97	450,226·82	2,522·1-

Cement from Alluvial claims:											
Reported by Owners	..	..	..	..	..	305·41	867·52	26,376·40	12,715·90	..
Treated locally (not reported by owners) at:										
Kalgoorlie Foundry, Ltd., Works	..	..	..	..	..	..	..	50·00	12·75	..
Lady Pratt Works	..	..	..	..	..	..	..	15·00	3·18	..
Old Cement Works	..	..	88·00	23·21	..	..	..	10,679·00	3,477·88	..
Riedel and Norton's Works	..	..	538·00	90·96	..	..	..	14,597·00	2,148·63	..
Various works	..	..	..	..	..	..	..	77,350·21	54,918·51	..
Treated outside district (not reported by owners) ..	..	..	..	..	..	..	..	27,804·55	36,711·17	..
Reported by Banks and Gold Dealers	..	..	..	..	..	103,896·13	·86	..	84·69	..
Total	..	**18·16**	**10,459·00**	**6,373·84**	..	**104,343·79**	**10,761·72**	**910,926·13**	**560,299·53**	**2,522·12**

KURNALPI DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Jubilee ..	..	Voided leases	..	..	..	..	..	..	145·13	1,821·25	1,408·51	..
Do. ..	..	Sundry claims	..	..	..	..	..	18·87	..	46·00	28·91	..
Kurnalpi ..	423K	Kurnalpi Pride	..	73·04	..	..	..	..	578·45	..	..	..
Do. ..	(422K)	Perseverance	..	..	..	..	..	..	85·88	9·00	32·61	..
Do. ..	..	Voided leases	..	..	..	..	..	371·18	1,700·07	2,796·31	2,212·78	6·27
Do. ..	..	Sundry claims	..	..	..	..	..	226·49	76·23	130·00	157·19	..
Mulgabbie ..	424K	John Bull	..	..	2·00	212·98	..	..	..	2·00	212·98	..
Do. ..	312K	Mulgabbie Perseverance ..	..	..	..	..	..	..	..	34·40	2,936·37	4·95
Do. ..	421K	Star	..	..	..	..	..	..	12·94	3·75	404·05	..
Do. ..	..	Voided leases	..	..	..	..	..	..	549·37	44·50	3,737·29	..
Do. ..	..	Sundry claims	..	..	..	..	..	6·50	1,432·79	137·50	820·13	..
		From District generally :—										
		Sundry parcels treated at:										
		Various works	..	..	..	..	..	..	..	56·50	193·15	..
		Reported by Banks and Gold Dealers	..	..	..	..	..	11,361·84	19·62	..	..	..
		Total	..	**73·04**	**2·00**	**212·98**	..	**11,984·88**	**4,600·48**	**5,081·21**	**12,143·97**	**11·22**

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

East Coolgardie Goldfield.

EAST COOLGARDIE DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Binduli ..	..	Voided leases	..	..	..	..	..	..	..	175·80	97·60	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	138·47	74·34	..
Boorara ..	4569E	Elsie May..	..	..	112·00	151·03	..	..	..	112·00	151·03	..
Do. ..	3908E, 3910E, 3912E, (4033E), 4045E, (4327E),	Golden Ridge G.M. Co., Ltd. ..	..	..	7,403·87	5,836·80	..	..	..	233,596·62	127,964·57	308·79
Do. ..	3908E, 3910E, 3912E, (4033E)	(Waterfall leases)	..	..	..	..	..	..	..	2,849·00	2,389·48	..
Do. ..	..	Voided leases	..	..	..	..	..	..	268·28	56,602·63	31,233·31	..
Do. ..	..	Sundry claims	..	..	56·25	70·73	..	·49	2·30	214·50	176·98	..
Boulder ..	392E	(Acrobat: Paringa Consolidated Mines, Ltd.)	..	..	..	..	..	..	..	10·25	37·15	..
Do. ..	392E	Acrobat: Paringa Mines (1909), Ltd.	..	..	526·21	322·76	..	..	..	13,321·33	6,222·69	..
Do. ..	38E, 71E, 72E, (101E)	Associated G.Ms. of W.A., Ltd. ..	..	..	84,528·00	30,596·29	710·00	..	8·49	1,637,696·70	942,492·48	28,952·38
Do. ..	49E, (4211E) ..	Associated Northern Blocks (W.A.), Ltd.	..	..	4,380·79	5,384·39	..	..	524·18	343,843·33	428,958·34	4,844·50
Do. ..	(682E), 902E, 923E, 986E, (1064E), 1124E, 1196E, 4075E	(Boulder Deep Levels, Ltd.) ..	..	..	..	..	..	..	..	3,043·00	1,778·10	26·71
Do. ..	902E, 923E, 986E, 1124E, 1196E, 4075E	(Boulder Deep Levels (1907), Ltd.) ..	..	..	..	..	..	..	..	787·50	210·30	..
Do. ..	281E	(Brookman Bros: Boulder G.M. Co., Ltd.)	..	..	..	..	..	..	..	8,655·00	8,417·00	..
Do. ..	989E	(Brown Hill Central G.Ms., Ltd.) ..	..	..	..	..	..	..	..	2,957·50	2,071·92	..
Do ..	558E, (1175E), 3961E	Brown Hill Extended, Ltd.	..	..	72·96	193·14	..	..	..	34,722·24	45,515·81	..
Do. ..	1163E	(Cassidy's North)	..	..	..	..	..	..	..	67·00	7·95	..
Do. ..	24E, (888E), 949E	Central and West Boulder G.Ms., Ltd.	..	..	1,485·90	469·28	..	..	..	63,075·77	32,128·70	..
Do. ..	352E	(Chaffers G.M. Co., Ltd.)	..	..	..	..	..	..	..	4,256·00	1,299·03	161·50
Do. ..	352E, 873E, 4334E	(Chaffers G.M. Co., Ltd.)	..	..	..	..	..	..	..	111,111·00	44,796·77	..
Do. ..	352E, 873E, 4334E	(Chaffers Gold Mining Co. (1913), Ltd.)	..	..	..	..	..	..	..	13,350·00	3,334·91	129·57
Do. ..	1621E	(Crœsus Proprietary G.M. Co.) ..	..	..	..	..	..	..	..	79·00	45·87	..
Do. ..	13E, 90E, 302E, 989E	(Croesus South G.Ms., Ltd.)	..	..	..	..	..	..	..	71,882·07	26,984·05	..

Do. ..	13E, 90E, 302E, 989E	Croesus South leases	..	..	1,287·70	388·31	..	..	..	1,287·70	388·31	..
Do. ..	351E, 1001E, 1002E, 1085E, 1113E, 1219E, 1326E, 1397E	Golden Horseshoe Estates Co., Ltd.	..	..	179,340·00	89,009·78	36,370·32	..	..	3,700,370·00	2,384,011·87	369,218·10
Do. ..	750E	(Golden Link Consolidated G.Ms., Ltd.)	..	..	..	..	..	..	..	10,729·00	6,096·80	..
Do. ..	2325E, 2326E ..	(Golden Link Consolidated G.Ms., Ltd.)	..	..	..	..	..	..	..	1,525·00	733·48	..
Do. ..	750E, 1621E ..	(Golden Links, Ltd.)	..	..	..	..	..	..	..	87,115·02	43,504·60	19·06
Do. ..	873E	(Great Boulder Main Reefs, Ltd.) ..	..	..	..	..	..	..	..	143,292·39	119,541·14	761·98
Do. ..	50E	Great Boulder No. 1, Ltd.	..	..	256·45	121·47	..	..	..	17,732·18	13,972·09	..
Do. ..	66E	Great Boulder Perseverance G.M. Co., Ltd.	..	..	173,282·00	47,920·80	12,353·82	..	..	2,775,941·23	1,521,493·49	139,830·88
Do. ..	16E, 51E, 61E, 102E, 280E, 1109E, 4366E	Great Boulder Proprietary G.Ms., Ltd.	..	..	175,787·00	123,336·91	18,284·00	..	..	2,729,329·00	2,531,481·39	236,519·36
Do. ..	902E, 1124E ..	(Great Boulder South G.M. Co., Ltd.)	..	..	..	..	..	..	..	437·00	122·11	..
Do. ..	3643E	(Hainault G.M., Ltd.)	..	..	..	..	..	..	..	517,345·70	184,570·02	113·30
Do. ..	6E	(Hannans Block 45, Ltd.)	..	..	..	..	..	..	..	2,343·55	3,226·69	..
Do. ..	131E, 245E, 269E 743E, 794E, 969E	(Hannans Central G.Ms., Ltd.) ..	..	..	..	..	..	..	..	6,098·00	3,360·33	..
Do. ..	739E	(Hannans Croesus G.M. Co., Ltd.) ..	..	..	..	..	..	..	..	4,256·75	4,416·90	..
Do. ..	1004E	(Hannans North Croesus G.M. Co., Ltd.)	..	..	..	..	..	..	..	50·00	13·21	..
Do. ..	15E, 60E, 902E, 923E, 986E, 1116E, 1124E, 1196E, 4075E	(Hannans Star Consolidated, Ltd.) ..	..	..	..	..	..	..	..	360·00	175·59	..
Do. ..	15E, 60E, 1116E	(Hannans Star G.M. Co., Ltd.) ..	..	..	..	..	..	..	..	85,652·75	40,438·85	2,142·59
Do. ..	15E, 60E, 1116E	(Hannans Star, Ltd.)	..	..	..	..	..	..	..	13,470·50	4,716·66	191·22
Do. ..	4317E, 4318E, 4442E	Idaho leases	..	232·13	15,230·00	4,153·94	..	..	2,923·38	64,556·77	30,383·31	..
Do. ..	946E (4370E) ..	Ironsides North leases	..	..	6,350·55	15,746·22	..	..	..	50,258·05	84,111·36	..
Do. ..	946E	(Ironsides North G.M. Co., N.L.) ..	..	..	..	..	..	..	..	1,348·00	807·48	..
Do. ..	31E, 1357E, 1413E, 1507E, 4399E, 4445E, 4476E	Ivanhoe Gold Corporation, Ltd. ..	..	..	214,327·00	89,840·68	17,142·80	..	..	3,163,352·00	2,061,318·54	308,437·81
Do. ..	1507E, (2899E), (3712E), (3713E)	(Ivanhoe Junction G.M. Co., N.L.) ..	..	..	..	..	..	..	..	1,764·00	121·43	..
Do. ..	6E, 131E, 245E, 269E, 301E, 739E, 743E, 794E, 969E	(Kalgoorlie Amalgamated, Ltd.) ..	..	..	..	..	..	..	..	32,589·00	8,859·95	..
Do. ..	6E, 131E, 245E, 269E, 301E, 739E, 743E, 794E, 969E	(Kalgoorlie Amalgamated (New) Ltd.)	..	..	..	..	..	..	..	27,145·00	6,265·27	..
Do. ..	6E, 131E, 245E, 269E, 301E, 739E, 743E, 794E, 969E	(Kalgoorlie Amalgamated (1909), Ltd.)	..	..	..	..	..	..	..	7,940·50	1,568·40	..
Do. ..	33E	(Kalgoorlie Bank of England G.M. Co., Ltd.)	..	..	..	..	..	..	..	11,775·50	7,080·49	..
Do. ..	73E (74E) ..	(Kalgoorlie Mint and Iron King Gold Estates, Ltd.)	..	..	..	..	..	..	..	3,020·00	1,762·00	..
Do. ..	73E (74E) ..	(Kalgoorlie Mint and Iron King G.Ms., Ltd.)	..	..	..	..	..	..	..	3,647·00	7,454·80	..
Do. ..	1004E	(Kalgurli Golden Eagle)	..	..	..	..	..	..	..	4,891·50	1,289·65	..
Do. ..	1004E	(Kalgurli Golden Eagle: Golden Links Ltd.)	..	..	..	..	..	..	..	193·00	31·63	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued

East Coolgardie Goldfield—*continued.*

EAST COOLGARDIE DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Boulder ..	22E, 34E	Kalgurli G.Ms., Ltd.	..	..	101,146·00	45,684·42	..	..	..	1,463,270·25	971,413·64	188·24
Do. ..	15E, 25E, 32E, 60E, 352E, 873E, 902E, 923E, 986E, 1116E, 1124E, 1196E, 2325E, 2326E, 4075E, 4334E, (4432E), (4433E), (4434E), 4493E	Lake View and Star, Ltd.	..	..	155,903·16	42,817·83	3,619·40	..	..	1,147,544·85	371,916·88	40,413·39
Do. ..	25E, 32E, 2325E, 2326E	(Lake View Consols, Ltd.)	..	..	..	..	..	..	..	1,179,303·55	1,016,875·27	38,491·89
Do. ..	75E	(Lake View South G.M. (W.A.) Ltd.)..	..	..	..	..	..	..	..	10,712·98	11,393·57	..
Do. ..	75E	Lake View South, Ltd.	..	..	25·68	28·39	..	..	..	16,632·58	4,253·63	..
Do. ..	33E, 35E, 975E ..	New North Boulder G.Ms., Ltd. ..	..	..	1,697·55	1,220·46	..	..	..	20,843·79	12,981·98	..
Do. ..	33E, 35E, 975E ..	(North Boulder G.M. Co., Ltd.) ..	..	..	..	..	..	..	..	33,549·15	47,532·52	..
Do. ..	33E, 35E, 975E ..	(North Boulder G.Ms., Ltd.) ..	..	..	..	..	..	..	..	4,542·50	4,256·55	·63
Do. ..	281E, 287E, 444E	(North Kalgurli Co., Ltd.)	..	..	..	..	..	43·99	..	104,116·49	60,229·47	7,202·47
Do. ..	281E, 287E, 444E	North Kalgurli (1912) Ltd.	..	..	3,465·70	1,493·85	..	..	..	21,254·53	8,321·27	..
Do. ..	73E, 410E, 448E, 532E, 578E, 698E, 944E, 1395E, (3031E), (4180E)	(Oroya Brownhill Co., Ltd.)	..	..	..	..	..	..	..	1,075,862·55	1,163,881·77	61,682·30
Do. ..	(4211E)	(Oroya East (Hannans) G.M., Ltd.) ..	..	..	..	..	..	..	..	625·00	288·39	..
Do. ..	6E, 73E, 131E, 245E, 269E, 301E, 410E, 448E, 532E, 578E, 698E, 739E, 743E, 750E, 794E, 944E, 969E, 1004E, 1395E, 1621E, (3031E), (4180E)	Oroya Links, Ltd.	..	..	59,747·16	23,960·98	3,933·04	..	..	779,950·46	250,237·20	26,176·92
Do. ..	4E, 392E ..	(Paringa Mines, Ltd.)	..	..	..	..	..	..	..	37,962·98	16,779·96	..
Do. ..	4E, 392E ..	(Paringa Mines (1909), Ltd.)	..	..	..	..	..	..	..	26,890·74	12,599·54	..
Do. ..	1208E, 3612E, 3643E	South Kalgurli Consolidated. Ltd.) ..	..	..	98,409·00	31,021·63	2,592·99	..	..	358,962·00	114,334·78	8,216·61
Do. ..	1208E, 3612E ..	(South Kalgurli G.Ms., Ltd.).. ..	..	..	..	..	..	..	..	826,909·00	347,222·75	17,609·67
Do. ..	4537E	Union Jack	..	..	..	..	..	..	..	110·00	41·00	..
Do. ..	..	Voided leases	..	..	..	..	..	109·90	5,780·86	66,213·97	41,848·86	..
Do. ..	..	Sundry claims	..	..	50·00	124·93	..	24·58	..	1,363·96	1,053·22	..
Feysville ..	Block 48.. ..	Hampton Plains Estate, Ltd. ..	..	..	..	..	..	4,565·62	..	20,583·40	2,413·76	..
Do. ..	Block 50 ..	(Hampton Plains Estate (1906), Ltd).	..	..	..	..	..	..	..	85·00	108·82	..

Do.	Block 50	(Hampton Properties, Ltd.)							7·26	6,348·00	3,956·22	
Do.	Block 45	Hampton Properties, Ltd.							52·75	51·75	76·63	
Do.	Block 50	Hampton Properties, Ltd.		85·14	51·40	38·57			91·40	622·73	540·13	
Do.		Voided leases							22·86	305·70	111·90	
Do.		Sundry claims								156·01	48·73	
Kalgoorlie	4509E, 4530E, 4539E, 4551E	Adelaide Enterprise Prospecting Syndicate, N.L.			6,500·00	1,399·45				13,265·00	2,940·22	
Do.	4560E	Belgravia Hill			69·00	14·57				69·00	14·57	
Do.	796E, 1228E	(Bonnie Lass leases)							160·69	6,011·00	5,945·22	
Do.	796E, 1228E, (3771E)	Bonnie Lass leases			2,070·00	724·58				13,962·65	7,715·75	
Do.	4088E	Bonnie Play			24·00	2·51				107·61	14·65	
Do.	4E	Cassidy's Hill		1,372·81	1,416·00	1,630·41			3,982·33	4,125·00	5,563·50	13·90
Do.	4E	(Cassidy's Hill: Paringa Mines (1909), Ltd.)							734·99	638·50	3,079·51	
Do.	(4524E)	Corn Cob								383·06	80·24	
Do.	4557E	Corn Cob			51·42	27·04				51·42	27·04	
Do.	4545E	Creswick			119·00	47·49			3·89	158·00	107·59	
Do.	(4037E), (4039E), (4054E)	(Devon Consols South Extended leases)								2,251·00	1,400·94	
Do.	(4037E), (4039E), (4054E), (4231E), (4368E)	(Devon Consols South Extended leases)								8,269·14	2,712·76	
Do.	(4037E), (4039E), (4054E), (4231E), (4368E)	(Devon Consols South Extended leases: Forwood, Down & Co., Ltd.)								590·04	143·28	
Do.	(4037E), (4054E), (4368E)	Devon Consols South Extended leases: Forwood, Down & Co., Ltd.								453·36	267·68	
Do.	(3770E)	(Eagle Hawk United)						109·01	828·69	4,161·56	3,180·60	
Do.	4509E	(Enterprise)								219·00	76·49	
Do.	(4052E), (4063E), (4319E)	Fair Play leases							4·77	2,982·50	3,932·28	
Do.	(1694E), (4273E), (4274E), (4331E), (4380E)	Golden Zone leases				2·72			28·25	44,601·00	67,607·85	
Do.	4539E	(Gordon)								64·89	14·24	
Do.	14CE, 415E, 1163E	Hannans Consols leases						2·84	276·35	45,428·67	6,142·22	
Do.	14CE, 415E, 1163E	(Hannans Consols, Ltd.)								6,584·00	3,806·65	
Do.	(4273E), (4274E)	(Hannans North G.Ms., Ltd.)								1,244·00	392·72	
Do.	4546E, 4547E, 4548E	Hannans Reward, Ltd.			12,328·00	2,164·59				14,949·00	2,595·33	
Do.	796E, 1228E	(Hannans Reward North G.M. Co., N.L.)							16·87	334·00	247·34	
Do.	4001E, 4035E, 4036E	Hidden Secret leases			52·00	11·37			105·65	10,695·95	15,290·55	43,383·29
Do.	4320E	Ivy			600·00	303·87				600·00	303·87	
Do.	(4556E)	Last Chance			100·00	46·35				100·00	46·35	
Do.	(4346E)	(Little Wonder)								3,796·00	1,530·61	
Do.	(4346E), (4347E)	Little Wonder leases			65·00	66·45				6,168·55	2,331·98	
Do.	4345E	(Lone Hand)								6,092·00	408·02	
Do.	4345E	Lone Hand				452·80					628·02	
Do.	4345E, (4459E), (4461E)	(Lone Hand leases)								6,560·00	1,721·71	
Do.	4477E	Lord Nelson		18·16	67·00	148·15			102·02	2,325·24	990·74	
Do.	4550E	Marian Catherine			191·00	32·92				286·00	54·30	
Do.	(2E), (279E)	(Maritana G.M. Co., N.L.)							32·27	11,373·50	4,628·55	
Do.	(2E), (279E), (3770E)	Maritana leases						24·19	724·13	21,019·63	8,674·19	29·29
Do.	(4347E)	(Mystery)								8,783·00	1,815·12	
Do.	4565E	Napoleon			255·00	76·20				255·00	76·20	
Do.	4482E	North Collier			90·00	96·85				371·60	1,572·69	

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

East Coolgardie Goldfield—*continued.*

EAST COOLGARDIE DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Kalgoorlie ..	(4037E), (4039E), (4054E)	(North End Mines, Ltd.)	..	..	..	..	..	..	..	1,812·00	883·27	..
Do. ..	(4037E), (4039E), (4054E)	(North End G.Ms., Ltd.)	..	..	..	..	..	..	..	5,876·00	2,425·03	4·00
Do. ..	4E	(Paringa Consolidated Mines, Ltd.) ..	..	..	..	..	..	..	..	216·00	157·80	..
Do. ..	1228E	(Red White and Blue)	..	..	..	..	..	..	..	130·00	25·56	..
Do. ..	(4039E)	(Rising Sun)	..	..	..	..	..	..	..	170·00	28·50	..
Do. ..	(4039E)	(Rising Sun)	..	..	..	..	..	..	..	16·00	1·88	..
Do. ..	(4039E)	Rising Sun	..	..	..	..	..	..	..	251·00	1,114·82	..
Do. ..	(4037E), (4039E), (4054E), (4231E)	(Rising Sun leases)	..	..	..	..	..	..	..	294·00	98·78	..
Do. ..	(3771E)	(Sons of Gwalia, Kalgoorlie) ..	..	..	..	..	..	..	..	1,428·00	844·54	..
Do. ..	(4558E)	Star	..	..	35·00	11·83	..	..	..	35·00	11·83	..
Do. ..	4542E	Successful	..	..	..	..	..	..	..	20·00	10·12	..
Do. ..	(4289E), 4320E	(Union Club leases)	..	..	..	..	..	..	53·28	4,626·00	1,437·28	..
Do. ..	(4037E), (4039E), (4054E), (4231E), (4368E)	(Westralia United Goldfields, Ltd.) ..	..	..	..	..	..	..	..	1,719·77	504·80	..
Do. ..	4499E	Williamstown	..	..	..	..	..	..	..	1,900·55	573·76	..
Do. ..	..	Voided leases	..	..	..	..	..	106·44	1,584·82	601,971·58	177,184·12	586·64
Do. ..	..	Sundry claims	..	21·44	1,902·54	821·50	..	207·69	284·60	15,464·05	4,091·94	..
Wombola ..	4578E	Business Risk	..	..	30·00	269·23	..	..	..	30·00	269·23	..
Do. ..	4574E	Creedons Welcome	..	..	19·30	98·44	..	..	..	19·30	98·44	..
Do. ..	4555E	Dinnie	..	..	24·60	252·33	..	..	..	24·60	252·33	..
Do. ..	..	Voided leases	..	..	..	..	..	..	613·86	4,721·98	1,978·31	..
Do. ..	..	Sundry claims	..	..	18·90	13·00	..	..	..	500·36	120·54	..
		From District generally :—										
		Sundry claims	..	..	..	..	..	10,907·93	431·95	5,208·00	1,560·12	..
		Sundry parcels treated at :—										
		Adeline Works	..	..	65·00	160·72	..	42·64	35·12	98·00	20,812·33	..
		Associated Northern Works	..	..	..	..	..	..	..	..	287·41	..
		Bonnie Lass leases	..	..	..	..	..	..	..	55·00	1,297·73	..
		Brown Hill Consols Works	..	..	..	642·72	..	..	..	740·26	44,994·50	..
		Dunstan and Cummings Works	..	..	..	1,149·70	..	..	..	..	4,770·05	1,194·00
		Fremantle Trading Co.'s Works	..	..	..	264·69	150·70	..	..	..	4,903·99	6,430·77
		Hainault Sulphide Plant	..	..	35·66	75·50	..	..	..	35·66	576·87	..
		Hannans Central Lakeside Works	..	..	57·81	159·28	..	..	..	58·06	4,781·30	..
		Hannans Central Works	..	..	..	4,999·12	..	..	..	142·80	45,622·35	..
		Ironsides North Works	..	..	..	..	..	..	..	73·00	10,515·97	..
		Kalgoorlie Gold Recovery Works	..	..	..	..	..	..	..	..	2,196·84	202·37
		North Kalgurli Battery	..	..	..	..	..	..	..	..	810·22	..
		Various Works	..	..	..	..	..	341·72	15·15	38,683·72	63,195·96	1,766·30
		Reported by Banks and Gold Dealers	353·76	..	..	..	..	10,246·48	9,013·32	..	4·57	..
		Total	**353·76**	**1,729·68**	**1,311,108·56**	**576,099·97**	**95,157·07**	**26,733·52**	**28,714·76**	**24,212,787·25**	**15,800,949·32**	**1,345,250·43**

BULONG DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Balagundi ..	1080Y	Balagundi	..	..	..	..	..	..	542·52	21·00	159·07	..
Do. ..	(1100Y)	Iron Knob	..	..	4·00	44·28	12·92	..	50·93	4·00	44·28	12·92
Do. ..	..	Voided leases	..	..	..	..	..	..	1,815·53	1,079·68	1,247·22	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	69·66	206·40	149·44	..
Bulong ..	1110Y	Green Lode	..	38·88	..	..	..	..	38·88	..	..	..
Do. ..	..	Voided leases	..	..	..	..	..	107·54	8,364·22	99,601·22	82,404·30	..
Do. ..	..	Sundry claims	..	21·71	7·50	18·86	..	1,648·60	987·93	6,819·60	14,482·17	..
Hogan's Find	..	Voided leases	..	..	..	..	..	..	908·82	309·50	276·51	..
Majestic ..	..	Voided leases	..	..	..	..	..	..	..	1,001·25	318·78	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	43·20	17·00	7·42	..
Mt. Monger ..	..	Voided leases	..	..	..	..	..	..	1,862·57	1,121·35	969·69	..
Do. ..	..	Sundry claims	..	..	12·00	82·29	..	215·60	..	369·80	302·47	..
Randall's ..	1079Y	Comstock, W.A.	..	..	90·00	34·85	..	..	..	643·04	259·72	..
Do. ..	1086Y, 1087Y, 1088Y	Transcontinental leases ..	..	..	4,005·00	912·51	..	..	..	19,723·90	4,794·10	..
Do. ..	..	Voided leases	..	..	..	..	..	..	60·04	11,453·10	5,592·16	..
Do. ..	..	Sundry claims	..	..	26·00	7·55	..	20·45	..	1,893·55	486·04	..
Sudden Jerk	..	Voided leases	..	..	..	..	..	..	63·91	14·25	53·67	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	·15	10·23	..
Taurus ..	..	Voided leases	..	..	..	..	..	2·06	3·70	1,678·15	760·83	..
Do. ..	..	Sundry claims	..	..	..	..	..	112·69	..	276·00	411·01	..
Woodline ..	..	Voided leases	..	..	..	..	..	..	..	792·75	610·57	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	39·33	61·57	..
		From District generally :—										
		Sundry claims	..	..	..	..	..	5·64	41·85	790·75	284·26	..
	Sundry parcels treated at :											
	Various Works		..	..	..	..	..	..	..	6,102·15	5,848·25	..
	Reported by Banks and Gold Dealers		..	..	..	..	..	24,391·57	52·39	..	..	..
		Total	..	**60·59**	**4,144·50**	**1,100·34**	**12·92**	**26,504·15**	**14,906·15**	**153,957·92**	**119,533·76**	**12·92**

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued

Coolgardie Goldfield.

COOLGARDIE DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Bonnievale ..	(4433)	Lorna	..	..	36·50	38·14	..	..	5·38	493·75	370·32	..
Do. ..	4554	Lorna	..	..	37·50	65·47	..	..	..	37·50	65·47	..
Do. ..	(1552)	New Victoria	..	..	..	9·25	..	..	..	210·00	128·27	..
Do. ..	4558	New Victoria	..	..	110·75	226·70	..	..	..	110·75	226·70	..
Do. ..	(1552)	(New Victoria)	..	..	..	..	..	..	..	264·00	169·00	..
Do. ..	(1552), (4313) ..	(New Victoria leases)	..	..	..	..	..	..	..	2,744·00	1,338·39	..
Do. ..	(1552), (3947), (4353)	(Vale of Coolgardie G.Ms., Ltd.) ..	..	..	..	..	..	..	..	74,835·00	38,993·49	..
Do. ..	..	Voided leases	..	..	..	..	..	..	2·26	271,693·85	146,077·89	..
Do. ..	..	Sundry claims	..	..	63·50	47·94	..	..	23·54	1,558·78	883·75	..
Bulla Bulling	4548	Golden Gate	..	..	48·75	6·14	..	..	..	48·75	6·14	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	563·63	340·01	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	12·82	314·60	182·17	..
Burbanks ..	4460	Aurifer	..	..	61·50	48·50	..	..	12·13	259·00	390·20	..
Do. ..	4484	Belgian Queen	..	42·08	65·50	101·00	..	..	91·18	153·10	230·82	..
Do. ..	134, 135, 136, 1527, (1705), 2761, (3571), (3661), (3806), (3996), (4025), (4032)	(Burbanks Birthday Gift G.M., Ltd.)	..	..	..	..	..	..	..	132,706·00	126,351·59	..
Do. ..	134, 135, 136, 1527, (1705), 2761, (3571), (3661), (3806), (3996), (4025), (4032)	(Burbanks Birthday G.Ms., Ltd.) ..	..	..	..	..	..	..	..	36,677·20	25,186·99	334·85
Do. ..	134, 135, 136, 1527, 2761, (3571), (3661)	Burbanks Birthday G.Ms., Ltd. ..	..	..	2,071·50	911·99	..	..	..	34,947·98	20,886·62	89·38
Do. ..	(2985), (2986), (3444), (3870), (4059)	(Burbanks Main Lode, Ltd.) ..	..	..	..	..	..	..	..	3,209·00	1,671·63	..
Do. ..	(2985), (2986), (3444), (3870), (4059)	(Burbanks Main Lode (1902), Ltd.)..	..	..	..	..	..	..	..	4,824·00	3,214·50	..

Do.	(2985), (2986), (3444), (3870), (4059)	(Burbanks Main Lode (1904), Ltd.)	..	..	..	..	..	..	..	76,844·10	44,924·94	..
Do.	(1705), (2985), (2986), (3444), (3870), (4059), (4446), (4447)	(Burbanks Main Lode (1904), Ltd.)	..	..	..	..	..	..	..	61,500·00	36,510·22	..
Do.	4409	Burbanks Mainstay	..	..	310·00	88·27	..	..	..	1,949·00	541·21	..
Do.	4168	Glenloth South	..	..	..	..	..	..	79·67	892·00	1,288·48	..
Do.	4471	Ivanhoe Burbanks	..	..	541·75	377·62	..	..	..	1,152·25	821·00	..
Do.	4442	Ivanhoe North	..	..	..	..	..	..	..	81·75	39·27	..
Do.	2160	Lady Robinson	..	..	238·00	68·76	..	..	..	4,839·00	1,846·89	..
Do.	2160	(Lady Robinson)	..	..	..	..	..	..	..	5,315·40	3,327·12	..
Do.	2160, (3950), (4125)	(Lady Robinson G.M. Co., N.L.)	..	..	..	..	..	..	..	16,823·50	7,797·88	..
Do.	4469	Lord Bobs	..	..	103·00	19·42	..	..	..	402·75	90·50	..
Do.		Voided leases	..	..	..	..	..	13·36	105·24	21,889·38	22,394·77	96·83
Do.		Sundry claims	..	11·44	122·25	90·37	..	43·37	69·69	3,276·00	2,347·60	..
Coolgardie	4444	Benjamin George	..	6·94	209·50	247·82	..	..	74·10	1,307·50	2,787·98	..
Do.	(4542)	Charlotte	..	..	..	..	..	..	..	5·00	15·14	..
Do.	4559	Cockshot	..	29·38	23·50	429·07	..	..	29 38	23·50	429·07	..
Do.	(4434)	Daisy	..	..	390·00	25·08	..	..	..	390·00	25·08	..
Do.	4555	Dreadnought	..	..	396·91	219·95	..	..	..	396·91	219·95	..
Do.	(4480)	Ethel Doris	..	..	..	..	..	..	..	70·00	20·04	..
Do.	(4474)	Gift	..	..	..	..	..	..	..	208·50	73·36	..
Do.	(4448)	Griffiths Gold Mine	..	..	..	..	..	..	..	675·25	79·40	..
Do.	Block 35	Hampton Plains Estate, Ltd.	..	..	..	..	..	..	..	100·50	28·76	..
Do.	Block 49	Hampton Plains Estate, Ltd.	..	..	..	..	..	..	..	15·50	13·99	..
Do.	Block 53	Hampton Plains Estate, Ltd.	..	..	..	..	..	..	358·42	67·00	112·49	..
Do.	Block 59	Hampton Plains Estate, Ltd.	..	4·12	299·25	330·45	..	..	4·12	7,594·25	6,972·36	..
Do.	(4486)	Iron Duke	..	..	47·50	10·17	..	..	..	197·00	48·13	..
Do.	4443	King Solomon	..	23·62	1,020·00	46·88	..	..	35·27	3,007·50	739·00	..
Do.	4556	Lady Carmen	..	10·65	271·50	129·98	..	..	10·65	271·50	129·98	..
Do.	4560	Last Chance	..	179·35	7·00	13·37	..	..	179 35	7·00	13·37	..
Do	(4478)	Lizard	..	..	..	..	..	..	..	10·50	10·81	..
Do.	4435	Prosperity	..	32·75	377·25	162·75	..	..	73·75	3,109·00	1,473·88	..
Do.	4479	Rio Tinto	..	..	87·50	52·01	..	..	..	208·00	82·68	..
Do.	(33), (3824), (3830), (4227), (4323), (4326), (4544)	Tindal's Coolgardie G.M. Co., N.L.	..	..	69·00	170·78	..	..	..	143,070·35	35,171·01	..
Do.		Voided leases	..	..	..	..	..	1,296·50	3,418·30	380,692·13	274,331·21	·96
Do.		Sundry claims	..	468·70	2,554·60	1,137·50	..	62·74	1,599·95	27,488·65	12,009·85	..
Eundynie	4253	(Hidden Secret North)	..	..	..	..	..	..	..	68·00	60·72	..
Do.	4253, 4266, 4351, (4405), (4406), 4462	Hidden Secret North leases	..	..	150·00	58·61	..	..	..	26,621·00	13,255·73	..
Do.		Voided leases	..	..	..	..	..	..	..	1,473·50	644·31	1·75
Do.		Sundry claims	..	..	..	..	..	..	..	117·00	31·11	..
Gibraltar	4530	Bulla Bulling	..	..	184·00	142·76	..	..	..	229·00	166·99	..
Do.	(4487)	Lloyd George	..	..	..	..	..	..	..	86·50	85·56	..
Do.	(4504)	Lord Kitchener	..	..	14·50	24·58	..	..	..	46·25	65·29	..
Do.	(4535)	Quartette	..	..	..	..	..	..	..	27·00	109·31	..
Do.		Voided leases	..	..	..	..	..	..	..	381·50	118·49	..
Do.		Sundry claims	..	..	156·75	72·46	..	..	41·49	321·25	262·31	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Coolgardie Goldfield—*continued.*

COOLGARDIE DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs)	Fine ozs.	Fine ozs.
Gnarlbine ..	..	Voided leases	..	..	..	..	..	..	10·94	1,899·75	1,049·90	..
Do. ..	..	Sundry claims	..	..	17·00	9·49	..	..	1·31	184·75	97·36	..
Higginsville ..	4184, (4185), (4191), (4206), (4207)	(Red Hill Westralia G.Ms., Ltd.) ..	..	..	..	..	..	..	..	16,983·00	6,848·02	127·78
Do. ..	4184	(Sons of Erin: Forwood Down & Co., Ltd.)	..	..	..	..	..	..	..	117·00	1,000·35	..
Do. ..	4184, (4185) ..	(Sons of Erin G.M. Co., N.L.) ..	..	..	..	..	..	..	285·20	4,742·00	2,938·77	..
Do. ..	4184, (4185), (4191), (4206), (4207)	(Sons of Erin leases)	..	..	..	..	..	..	..	1,394·00	911·95	..
Do. ..	4184, 4428, (4432)	Sons of Erin leases: Forwood Down & Co., Ltd.	..	..	1,017·00	764·27	..	..	..	2,385·00	1,665·27	7·01
Do. ..	..	Voided leases	..	..	..	..	..	..	2·06	5,274·00	1,020·45	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	16·52	720·90	492·89	..
Londonderry ..	3834	Cheapside	..	..	117·50	58·83	..	..	..	4,848·75	2,715·01	..
Do. ..	(4485)	Royal Standard	..	..	..	..	..	..	..	95·50	140·48	..
Do. ..	4545	Royal Standard	..	..	151·00	227·24	..	..	..	151·00	227·24	..
Do. ..	4475	Vice Regal	..	..	39·25	120·53	..	..	..	129·00	552·92	..
Do. ..	..	Voided leases	..	..	..	..	..	..	46·25	21,001·16	14,001·98	..
Do. ..	..	Sundry claims	..	..	121·75	81·13	..	..	6·00	1,113·10	1,148·14	..
Mungari ..	..	Voided leases	..	..	..	..	..	..	17·71	735·00	331·78	..
Do. ..	..	Sundry claims	..	11·87	43·00	13·35	..	..	107·82	340·01	200·77	..
Red Hill ..	..	Voided leases	..	..	..	..	..	..	1,541·48	40,793·20	31,064·05	..
Do. ..	..	Sundry claims	..	..	12·60	53·35	..	..	34·62	160·42	287·90	..
Ryan's Find ..	4500	Ryan's Reward	..	..	32·79	60·59	..	..	..	46·79	81·25	..
Do. ..	..	Sundry claims	..	·44	..	..	..	..	·44	13·00	21·43	..
Widgiemooltha	4028	Flinders	..	2·12	17·00	120·09	..	..	31·23	449·10	2,427·04	..
Do. ..	..	Voided leases	..	..	..	..	..	..	763·97	8,636·28	3,646·98	·17
Do. ..	..	Sundry claims	5·59	..	209·00	49·01	..	9·21	27·58	2,850·68	1,178·49	..

From District generally :—												
Sundry parcels treated at :												
Burbanks Main Lode Works	..	..	..	..	..	..	191·11	114·17	2·77	..	557·50	1,261·60	114·17
Carswell's Cyanide Works	..	..	..	..	..	..	..	..	..	..	..	668·99	..
Fremantle Trading Coy's. Works	..	..	..	..	..	..	..	..	..	..	..	20·08	..
Highgate Works	..	..	..	..	..	..	..	..	..	..	100·00	321·11	..
Lady Robinson Cyanide Works	..	..	..	..	..	..	..	..	..	..	70·00	348·28	..
New Victoria Works	..	..	..	..	..	..	..	..	..	..	..	98·56	..
Pickerings Cyanide Works	..	..	..	..	..	..	..	..	..	..	..	177·10	..
State Battery—Coolgardie	..	..	..	..	..	..	695·41	..	..	..	687·50	7,721·10	..
Various Works	..	..	..	..	..	..	..	..	4·98	..	3,083·61	14,673·47	108·89
Reported by Banks and Gold Dealers	..	..	..	120·89	..	..	..	..	7,049·19	543·04	..	..	..
Total	..	..	..	**126·48**	**823·46**	**11,847·15**	**7,818·19**	**114·17**	**8,482·12**	**9,662·86**	**1,478,464·56**	**937,571·90**	**881·79**

KUNANALLING DISTRICT.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Balgarrie	..	Voided leases	..	..	..	..	..	10·94	75·48	5,124·25	4,805·74	1·38
Do.	..	Sundry claims	..	..	..	..	..	..	18·57	912·25	358·01	..
Carbine	33s	(Carbine)	..	..	..	..	..	..	10·85	2,401·00	1,164·53	..
Do.	33s, 710s, 711s	Carbine leases	..	..	2,960·00	2,445·53	..	..	677·13	29,555·50	19,464·08	..
Do.	866s	Never Can Tell	..	..	363·50	253·08	..	..	..	363·50	253·08	..
Do.	..	Voided leases	..	..	..	..	..	..	..	2,524·00	2,719·54	..
Do.	..	Sundry claims	..	..	..	..	..	..	..	55·00	30·82	..
Carnage	..	Voided leases	..	..	..	..	..	176·04	659·31	2,402·00	2,170·67	..
Do.	..	Sundry claims	..	..	..	..	..	..	..	61·00	27·50	..
Cashmans	716s, [1289w]	Lady Evelyn	..	..	..	..	..	..	..	241·75	479·81	..
Do. (Siberia)	..	Voided leases	..	..	..	..	..	67·51	793·44	7,187·90	6,395·33	..
Do.	..	Sundry claims	..	..	..	..	..	..	6·16	116·00	67·61	..
Chadwin	(822s)	Resolute	..	..	18·00	53·54	..	..	..	289·00	964·34	..
Do.	..	Voided leases	..	..	..	..	..	..	..	822·75	1,097·78	..
Do.	..	Sundry claims	..	..	..	..	..	..	8·87	507·00	449·22	..
Dunnsville	..	Voided leases	..	..	..	..	..	..	181·12	17,407·10	7,982·23	..
Do.	..	Sundry claims	..	..	..	..	..	·43	27·63	293·09	265·11	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Coolgardie Goldfield—*continued.*

KUNANALLING DISTRICT—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Jourdie Hills	369s, (661s) ..	(Jourdie Hills G.M. Co., Ltd.) ..	..	..	..	..	..	..	..	9,635·00	7,868·08	..
Do. ..	369s, (661s) ..	(Jourdie United G.Ms., Ltd.) ..	..	..	..	..	..	..	..	1,520·00	1,027·63	..
Do. ..	(514s)	Pride of Jourdie North ..	..	..	..	..	..	..	..	3,167·00	2,974·72	..
Do. ..	369s	(Pride of the Jourdies)	..	..	..	..	..	..	..	410·74	465·47	..
Do. ..	369s	Pride of the Jourdies: Forwood Down & Coy., Ltd.	..	..	163·00	428·58	..	..	..	1,054·00	2,282·62	28·45
Do. ..	..	Voided leases	..	..	..	..	..	..	18·00	12,058·00	4,509·50	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	760·50	405·00	..
Kandana ..	..	Voided leases	..	..	..	..	..	..	..	465·00	68·12	..
Kintore ..	869s	Hilton	..	..	65·00	12·71	..	..	..	65·00	12·71	..
Do. ..	868s	Ormuz	..	..	700·00	65·95	..	..	..	700·00	65·95	..
Do. ..	865s	Verdun	..	..	14·00	6·50	..	..	..	14·00	6·50	..
Do. ..	..	Voided leases	..	..	..	..	..	..	143·66	43,027·14	31,747·44	..
Do. ..	..	Sundry claims	..	·32	10·00	4·30	..	100·30	·78	994·70	1,055·56	..
Siberia ..	728s, [1293w] ..	Mexico	..	..	..	..	..	..	..	216·50	427·07	..
Do. ..	..	Voided leases	..	..	..	..	..	1·07	1,557·81	8,000·35	10,103·07	..
Do. ..	..	Sundry claims	..	..	..	..	..	30·91	..	223·00	349·86	..
25-Mile ..	696s	(Blue Bell)	..	..	..	..	..	..	8·05	697·00	429·47	..
Do. ..	727s	(Blue Bell Extended)	..	..	..	..	..	..	..	113·00	71·32	..
Do. ..	696s, 727s ..	Blue Bell leases	..	..	73·00	14·73	..	..	..	1,563·00	1,625·44	..
Do. ..	(862s)	Britannia	..	..	15·00	3·70	..	..	..	50·00	10·99	..
Do. ..	845s	Sadie	..	..	226·00	304·39	..	..	..	1,326·00	1,167·92	..
Do. ..	645s	Star of Fremantle	..	..	42·00	16·76	..	..	..	5,259·00	3,495·76	..
Do. ..	603s	Sydney Mint	..	16·42	125·50	239·59	..	..	229·72	1,209·25	2,977·61	..
Do. ..	847s	Turn of the Tide	..	..	181·50	502·67	..	..	..	1,195·50	1,545·79	..
Do. ..	..	Voided leases	..	..	..	..	..	..	453·30	86,843·99	66,329·26	18·84
Do. ..	..	Sundry claims	..	..	569·50	244·71	..	6·62	98·21	5,989·45	3,123·77	..
		From district generally :—										
		Sundry parcels treated at :										
		Blue Bell Battery	..	..	..	216·69	..	..	..	72·00	1,214·03	..
		Hands Across the Sea Battery	..	..	..	..	..	..	..	..	24·51	..
		Stanley Works	..	..	..	..	..	14·86	..	402·60	370·43	..
		Various works	..	..	..	..	..	9·22	..	1,276·66	1,968·58	..
		Reported by Banks and Gold Dealers	20·02	..	..	..	..	187·61	1·10	..	..	..
		Total	**20·02**	**16·74**	**5,526·00**	**4,813·43**	..	**605·51**	**4,969·19**	**258,569·47**	**196,419·58**	**48·67**

Yilgarn Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Blackbourne..	..	Voided leases	..	..	..	..	..	..	..	1,282·50	341·37	..
Bullfinch ..	(2667)	Bullfinch East Extension ..	..	..	..	..	..	..	..	16·00	39·20	..
Do. ..	914, 915, 916, 926, 928, 942, 960	(Bullfinch leases)	..	..	..	..	..	..	..	1,027·52	10,958·88	..
Do. ..	914, 915, 916, 926, 928, 930, 942, 960	Bullfinch Proprietary (W.A.), Ltd. ..	..	..	63,715·00	17,825·85	4,601·80	..	..	247,393·42	106,445·38	16,442·43
Do. ..	..	Voided leases	..	..	..	..	..	..	..	344·65	325·47	..
Corinthian ..	893	Corinthian	..	..	..	..	..	..	..	2,684·50	1,123·80	..
Do. ..	896, 934, 946 ..	Corinthian North G.Ms., Ltd. ..	..	..	16,632·00	3,876·89	..	..	..	131,222·00	27,564·32	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	601·50	405·74	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	73·50	73·29	..
Ennuin ..	2803	Star of Ennuin	..	..	72·66	216·96	..	..	..	118·16	342·89	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	16·40	18·45	..
Do. ..	..	Sundry claims	..	..	13·50	10·71	..	..	..	100·50	60·58	..
Golden Valley	(2755)	Deborah	..	..	8·50	8·08	..	..	..	122·50	182·27	2·00
Do. ..	2272	Glide Away	..	..	..	..	..	..	..	851·00	1,001·83	..
Do. ..	2948	Greenharp New	..	..	134·50	186·59	..	..	..	148·50	197·99	..
Do. ..	3039	Lake View	..	..	34·00	36·50	..	..	..	34·00	36·50	..
Do. ..	2790	Manxman Consols	..	..	8·00	12·36	..	..	..	41·00	49·31	..
Do. ..	2389	(Marie's Find)	..	..	..	..	..	..	..	336·00	460·51	..
Do. ..	(2880)	Mount Kattrine	..	..	13·75	8·12	..	..	..	42·85	43·44	..
Do. ..	2389, 2390 ..	New Marie's Find G.Ms., N.L. ..	..	..	226·00	144·35	..	..	..	226·00	144·35	..
Do. ..	2994	Radio	..	..	42·00	244·65	..	..	..	42·00	244·65	..
Do. ..	2739	Rosalie	..	..	90·75	88·65	..	..	..	120·75	122·27	..
Do. ..	2653	Violet	..	..	..	..	..	..	..	83·64	56·12	..
Do. ..	..	Voided leases	..	..	..	..	..	..	18·05	3,593·25	3,622·64	..
Do. ..	..	Sundry claims	..	..	522·82	197·94	..	..	2·75	1,593·57	1,278·26	..
Greenmount ..	2992	Searchlight	..	..	32·00	17·44	..	..	..	32·00	17·44	..
Do. ..	550	(Sunbeam)	..	..	..	..	..	14·00	..	4,472·00	1,427·25	..
Do. ..	550	Sunbeam	..	..	..	..	..	..	..	200·00	100·14	..
Do. ..	550, (565) ..	(Sunbeam leases)	..	..	..	..	..	..	..	3,191·00	816·42	..
Do. ..	2987	Sunset	..	..	220·00	28·88	..	..	..	220·00	28·88	..
Do. ..	536	(Transvaal)	..	..	..	..	..	..	..	30,233·00	7,340·62	579·78
Do. ..	536, 1358 ..	Transvaal leases	..	..	78·00	15·37	..	..	..	78·00	15·37	..
Do. ..	..	Voided leases	..	..	..	..	..	31·99	21·62	70,297·00	17,459·88	364·72
Do. ..	..	Sundry claims	..	..	15·00	14·41	..	..	4·12	632·50	263·70	..
Hope's Hill ..	2544	Colleen Bawn	..	..	53·00	313·55	..	..	..	287·20	1,119·77	..
Do. ..	..	Voided leases	..	..	..	..	..	..	56·97	129,884·85	33,899·78	1·00
Do. ..	..	Sundry claims	..	2·83	113·50	97·81	..	..	25·38	1,317·50	467·40	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Yilgarn Goldfield—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Kennyville ..	776	Cornishman	..	..	189·00	151·38	..	..	13·18	2,048·00	1,780·53	..
Do. ..	570	(Great Leviathan)	..	..	..	..	..	..	..	3,821·85	2,948·67	..
Do. ..	570	Great Leviathan	..	..	384·00	272·68	..	..	..	4,073·00	3,192·32	..
Do. ..	570	(Great Leviathan: Northern Blocks Syndicate, Ltd.)	..	..	..	..	..	..	..	10,705·00	2,974·64	..
Do. ..	911	Trafalgar	..	..	20·00	9·40	..	..	..	1,337·00	1,111·52	..
Do. ..	..	Voided leases	..	..	..	..	..	..	5·58	1,183·50	477·89	·09
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	277·00	151·42	..
Koolyanobbing	..	Voided leases	..	..	..	..	..	..	..	308·00	116·74	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	55·00	11·24	..
Marvel Loch..	923	Bohemian	..	..	425·00	379·41	..	..	17·44	3,349·00	3,263·85	..
Do. ..	1689	(Bronco)	..	..	..	..	..	..	..	217·00	22·17	..
Do. ..	1689	Bronco: Bronco Horseshoe Proprietary Mining Co., N.L.	..	..	701·00	201·07	..	..	..	1,776·00	591·76	..
Do. ..	(1465)	Comet	..	..	..	..	..	..	..	6,673·00	5,640·34	..
Do. ..	(768)	(Donovan's Find)	..	..	..	..	..	..	..	1,768·00	1,999·43	..
Do. ..	(768)	Donovan's Find: Greenmount Mines, N.L.	..	..	900·00	89·92	..	..	..	2,276·00	1,117·44	..
Do. ..	1463	Eclipse	..	..	403·00	310·77	..	..	..	2,003·00	1,474·38	..
Do. ..	3006	Firelight	..	6·87	15·00	26·20	..	..	6·87	15·00	26·20	..
Do. ..	(820)	Gentle Annie	..	..	45·00	6·50	..	..	..	1,627·00	670·64	..
Do. ..	(2885)	Golden Cube	..	..	15·00	9·96	..	..	..	65·00	32·31	..
Do. ..	719	(Great Victoria)	..	..	..	..	..	..	..	1,356·00	281·53	..
Do. ..	719, 944, 945 1227, 1228, 1606	Great Victoria leases	..	..	18,100·00	1,830·63	..	..	..	60,988·00	7,056·80	..
Do. ..	(2907)	Jacoletti No. 1	..	..	304·00	124·03	..	..	..	367·00	164·72	..
Do. ..	(714)	(Marvel Loch)	..	..	..	..	..	..	..	500·00	316·81	..
Do. ..	(714), (723), (822), (869)	Marvel Loch G.M. Co., N.L. ..	..	..	..	..	..	..	..	49,235·50	18,590·18	379·96
Do. ..	852	May Queen	..	..	120·00	802·66	..	..	4·07	626·50	3,613·48	..
Do. ..	(803), (838), (948), (949), (950), (951)	(Mountain Queen leases) ..	..	..	..	..	..	..	..	748·00	208·39	..
Do. ..	(803), (838), (948), (949), (950), (951), (2543), (2754)	Mountain Queen, Ltd.	..	..	..	..	..	..	..	103,909·00	29,222·44	376·17
Do. ..	(665)	(Never Never)	..	..	..	..	..	..	..	29,395·00	7,709·26	..
Do. ..	3030	Never Never	..	..	85·00	48·25	..	..	..	85·00	48·25	..
Do. ..	(2979)	Newry	..	..	159·00	27·16	..	..	..	159·00	27·16	..
Do. ..	3017	Pro Patria	..	..	307·00	362·14	..	..	..	307·00	362·14	..
Do. ...	1011	Rising Star	..	..	..	..	..	..	..	140·00	11·48	..
Do. ..	2993	Sandfly	..	..	310·00	302·30	..	..	..	310·00	302·30	..
Do. ..	2998	St. George	..	..	708·00	294·90	..	..	..	708·00	294·90	..
Do. ..	3011	Victory	..	..	145·00	83·63	..	..	..	145·00	83·63	..

Do. ..	(665), (765) ..	Yilgarn G.M. Co., Ltd.	..	..	..	..	..	..	..	4,353·00	749·63	14·90
Do. ..	..	Voided leases	..	..	..	..	..	..	73·91	24,942·50	11,862·45	..
Do. ..	..	Sundry claims	..	3·71	802·00	690·42	..	7·72	68·81	5,425·75	3,371·26	..
Mt. Jackson ..	1979	Allen's Find	..	..	319·00	59·15	..	..	..	1,511·05	777·82	..
Do. ..	1933	Butcher Bird No. 1	..	..	683·00	598·51	..	..	..	2,668·50	1,977·59	..
Do. ..	2053	Great Unknown	..	..	167·00	140·98	..	..	37·22	1,225·43	3,469·92	..
Do. ..	(2190)	Miner's Dream	..	..	..	..	..	..	..	425·00	129·34	..
Do. ..	(2826)	Unknown South	..	..	..	..	..	..	..	19·00	15·62	..
Do. ..	..	Voided leases	..	..	..	..	..	..	77·66	30,914·55	21,046·90	2,305·28
Do. ..	..	Sundry claims	..	12·90	151·00	118·85	..	4·42	25·43	1,418·25	917·31	..
Mt. Rankin ..	..	Voided leases	..	..	..	..	..	3·84	5·20	496·00	122·17	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	170·00	54·38	..
Parker's Range	2978	Gift	..	..	46·00	57·49	..	..	..	96·00	71·39	..
Do. ..	2656	Golden Dream	..	37·10	125·00	125·10	..	..	37·10	376·00	635·85	..
Do. ..	(2606)	King of the Range	..	..	..	..	..	..	..	331·00	624·06	..
Do. ..	(2905)	Lord Kitchener	..	..	..	..	..	..	..	16·00	3·11	..
Do. ..	2801	Scots Greys	..	..	..	..	..	..	..	10·00	6·25	..
Do. ..	2546	South Side	..	..	..	..	..	..	4·82	112·00	42·21	..
Do. ..	724	(Spring Hill)	..	..	..	..	..	..	..	3,232·00	607·21	..
Do. ..	724, (760) ..	(Spring Hill leases)	..	..	..	..	..	..	..	8,910·00	2,215·59	..
Do. ..	724, 2633 ..	Spring Hill G.M. Co., N.L. ..	..	..	260·00	46·01	..	..	..	1,176·00	112·88	..
Do. ..	2806	Star of the Range	..	..	40·00	58·03	..	..	..	92·50	189·21	..
Do. ..	2951	White Horseshoe	..	..	541·75	484·02	..	..	..	541·75	484·02	..
Do. ..	..	Voided leases	..	..	..	..	..	..	63·22	12,431·75	8,205·58	..
Do. ..	..	Sundry claims	..	..	107·00	42·96	..	..	..	1,576·75	1,030·53	..
Southern Cross	(2744)	Central	..	..	..	..	..	..	..	273·00	62·50	..
Do. ..	3010	Central	..	..	167·00	51·25	..	..	..	167·00	51·25	..
Do. ..	3016	Central Extended	..	..	15·00	9·97	..	..	..	15·00	9·97	..
Do. ..	(2714)	Fraser's North Extended ..	..	..	..	..	..	..	..	10·00	10·37	..
Do. ..	(2342)	Haddon Consolidated	..	..	..	..	..	..	..	3,810·50	1,320·84	..
Do. ..	(2416)	(Maori Lass)	..	..	..	..	..	..	..	250·00	52·31	..
Do. ..	(2416)	Maori Lass, Ltd.	..	..	..	..	..	..	..	483·00	54·47	..
Do. ..	2987	Sunset	..	..	..	..	..	..	..	80·00	9·47	..
Do. ..	..	Voided leases	..	..	..	..	..	2·13	211·22	426,671·70	209,468·52	364·41
Do. ..	..	Sundry claims	..	..	242·80	113·34	..	3·73	595·45	2,292·10	684·38	..
Westons ..	2769	(Battler)	..	..	..	..	..	..	..	115·00	170·64	..
Do. ..	(2814)	Battler West	..	..	..	..	..	..	..	11·00	8·35	..
Do. ..	2180	(Edna May)	..	..	..	..	..	..	..	581·00	919·27	..
Do. ..	2769	Edna May Battler G.M.Co., N.L. ..	..	..	1,745·00	1,713·39	..	..	..	1,988·00	1,909·36	..
Do. ..	2291, 2585, 2615 ..	Edna May Central G.Ms., N.L. ..	..	..	32,062·00	11,811·79	..	..	..	64,118·00	18,682·49	19·38
Do. ..	2570, 2617, 2644 ..	Edna May Consolidated G.M. Co., N.L.	..	..	668·00	261·16	..	..	..	668·00	261·16	..
Do. ..	2180, 2605 ..	Edna May G.M. Co., N.L.	..	..	36,623·00	36,821·40	..	..	..	110,483·00	110,021·13	..
Do. ..	2775	Emma May	..	..	..	..	..	..	..	40·00	20·31	..
Do. ..	3026	Florence Mabel	..	..	17·00	19·94	..	..	..	17·00	19·94	..
Do. ..	3004	Great Battler	..	..	50·50	68·86	..	..	..	50·50	68·86	..
Do. ..	(2086), 2087, 2088, (2635)	Greenfinch Proprietary G.M., N.L. ..	..	..	59·00	26·92	..	..	..	7,875·00	2,853·95	..
Do. ..	2807	Hill End	..	..	68·00	43·43	..	..	..	194·00	136·87	..
Do. ..	(3020)	Irene	..	..	15·00	24·81	..	..	..	15·00	24·81	..
Do. ..	2291	(Myrtle Central)	..	..	..	..	..	..	..	751·00	243·96	..
Do. ..	2168, 2238 ..	Myrtle Consols leases	..	..	1,140·00	1,146·32	..	..	..	1,252·00	1,204·35	·20
Do. ..	2570	(Myrtle East)	..	..	..	..	..	..	..	202·00	116·12	..
Do. ..	2816	Pertha M.	..	..	392·00	263·41	..	..	..	392·00	263·41	..
Do. ..	(2867)	Western Options	..	..	10·00	2·88	..	..	4·06	10·00	2·88	..
Do. ..	2724	(Weston's Reward)	..	..	..	..	..	..	..	35·00	57·24	..

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Yilgarn Goldfield—*continued.*

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Westons ..	2724, 2761 ..	Weston's Reward G.Ms., N.L. ..	..	..	55·50	40·10	..	..	..	473·50	424·66	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	171·75	99·26	..
Do. ..	..	Sundry claims	..	..	18·00	11·73	..	..	11·04	728·75	710·05	..
		From Goldfield generally :—										
		Sundry parcels treated at :										
		Australia Battery	..	..	..	..	..	..	..	38·00	124·94	..
		Donovan's Find Battery	..	..	..	789·22	..	..	..	..	2,536·33	..
		Fraser's G.M. Works	..	..	..	..	..	..	..	..	583·63	..
		Fremantle Smelting Works	..	..	..	..	..	..	..	21·28	592·34	33·90
		Great Victoria Cyanide Works	..	..	..	1,321·00	..	..	..	..	3,295·38	..
		Greenfinch Proprietary G.M. Works	..	..	..	277·41	..	..	..	..	2,187·86	..
		Hopes Hill Cyanide Works	..	..	..	20·79	..	..	..	..	1,174·57	..
		Jacoletti Works	..	..	..	..	..	..	..	..	2,062·82	..
		Marvel Loch Mining Co., N.L.	..	..	..	1,244·00	..	..	..	..	3,633·77	..
		Never Never Works	..	..	..	146·00	..	..	..	..	146·00	..
		Spring Hill Works	..	..	..	30·82	..	..	..	..	266·26	..
		Sunbeam Works	..	..	..	356·06	..	..	..	8·00	5,242·28	..
		Violet Works	..	..	..	214·65	..	..	..	..	923·51	..
		Various Works	..	..	..	..	..	..	..	59·00	11,053·60	2·64
		Reported by Banks and Gold Dealers	..	..	..	..	..	22·05	3·53	..	..	..
		Total	..	**63·41**	**181,949·53**	**87,930·27**	**4,601·80**	**89·88**	**1,394·70**	**1,652,337·97**	**756,481·84**	**20,886·86**

Dundas Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Buldania ..	..	Voided leases	..	..	..	..	..	..	3·02	846·05	708·99	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	36·53	341·27	519·77	..
Dundas ..	..	Voided leases	..	..	..	..	..	..	..	4,543·23	2,208·48	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	385·37	182·50	143·88	..
Killaloe ..	..	Voided leases	..	..	..	..	..	..	..	20·65	6·88	..

Norseman ..	987, (1113) ..	(After Years leases)	..	..	..	..	..	..	..	2,065·50	978·92	..
Do. ..	1173	Benson	..	..	..	..	..	..	..	380·00	243·08	..
Do. ..	(1213)	Conqueror	..	..	22·50	3·47	..	..	..	22·50	3·47	..
Do. ..	1199	Crown	..	..	363·00	560·76	..	..	27·72	592·00	815·23	..
Do. ..	1183	Edith Eleanor	..	..	63·00	65·18	..	..	272·76	195·50	354·31	..
Do. ..	966	(Esperanza, No. 2)	..	..	..	..	..	..	·96	689·00	948·88	..
Do. ..	938, (945), 988 ..	(Hampton Plains Estate (1906), Ltd.)	..	..	..	..	..	..	9·50	8,493·00	2,229·24	..
Do. ..	938, (945), 988 ..	Hampton Uruguay, Ltd.	..	..	..	..	..	..	..	34,018·00	8,192·98	..
Do. ..	1209	Hoffman's Gold Mine	..	..	175·75	148·68	..	..	..	200·75	168·29	..
Do. ..	(1160)	King	..	..	194·50	18·32	..	..	..	18,285·50	3,069·08	..
Do. ..	852	(Mararoa)	..	..	..	..	..	..	..	9,167·00	4,484·90	..
Do. ..	852, 912, 966, 977, 979, 980, 985, 987, (1031), 1166, 1190, 1192, 1203	Mararoa G.M. Co., N.L.	..	..	28,550·50	12,157·83	..	..	..	242,696·50	121,716·88	23,014·38
Do. ..	(1207)	Mararoa North	..	..	261·50	25·85	..	..	..	564·00	79·51	..
Do. ..	(1113), (1205) ..	Mildura leases	..	..	136·00	19·70	..	..	..	136·00	19·70	..
Do. ..	1211	New King	..	..	767·00	77·12	..	..	..	767·00	77·12	..
Do. ..	903	(O.K.)	..	..	..	..	..	..	21·23	1,147·25	1,293·01	..
Do. ..	903, 1138 ..	O.K. leases	..	..	306·50	392·99	..	..	..	1,643·00	1,687·94	..
Do. ..	106, 187, 587, 840, (972)	Princess Royal G.M. Co., N.L. ..	..	..	50·00	265·58	..	..	..	168,982·50	143,319·37	9,364·14
Do. ..	(1021)	Princess Royal North	..	..	..	..	..	..	..	593·00	1,130·29	..
Do. ..	(1021)	(Princess Royal North G.M. Co., N.L.)	..	..	..	..	..	..	..	1,311·00	1,197·01	..
Do. ..	187	(Princess Royal South) ..	..	..	..	..	..	..	..	358·00	568·05	..
Do. ..	(1158)	Queen	..	..	..	..	..	..	..	216·00	28·93	..
Do. ..	1092	(Sun)	..	..	..	..	..	..	142·26	655·50	737·49	..
Do. ..	1092	Sun	..	..	100·75	140·13	..	..	..	468·00	907·04	..
Do. ..	1092, (1125) ..	(Sun leases)	..	..	..	..	..	..	..	337·00	692·34	..
Do. ..	1210	Surprise	..	440·37	..	..	6·48	..	440·37	..	46·43	6·48
Do. ..	986	Veni Vidi Vici	..	107·65	19·00	3·83	..	..	2,127·02	318·25	756·09	..
Do. ..	1016	(Viking Extended)	..	..	..	..	..	..	133·35	72·50	419·67	4·90
Do. ..	990	(Viking No. 1)	..	..	..	..	..	..	..	1,274·00	3,095·95	..
Do. ..	990, 1060 ..	(Viking No. 1 leases)	..	..	..	..	..	..	..	775·50	1,176·13	16·89
Do. ..	990, 1016, 1060 1117, 1194	Viking No. 1 leases	..	..	6,574·75	5,737·72	..	..	..	35,539·25	32,701·04	100·49
Do. ..	1180	Viking South	..	..	29·00	20·47	..	..	..	366·25	301·64	..
Do. ..	(1193)	Yorkshire Pudding	..	..	..	..	..	..	58·09	167·00	73·38	..
Do. ..	..	Voided leases	..	..	..	..	..	4·23	4,176·13	234,504·70	178,375·48	914·97
Do. ..	..	Sundry claims	..	116·33	957·25	833·11	..	996·60	2,023·06	16,254·40	8,974·64	·59
Peninsula ..	..	Voided leases	..	..	..	..	..	..	17·61	7,764·00	4,705·10	..
	From Goldfield Generally :—											
	Sundery Parcels treated at :—											
	Lady Mary Works	..	..	..	..	..	..	..	..	16·00	984·04	..
	Mararoa Crushing and Cyaniding Works ..	..	..	..	..	..	..	..	..	232·50	2,543·56	38·75
	Rawlings, Bullen and Rumbles Works ..	..	..	..	402·84	..	..	..	..	27·00	2,757·73	..
	State Battery, Norseman	..	..	..	56·85	..	..	..	..	376·00	10,107·60	885·41
	Various Works	..	..	..	..	..	..	..	54·52	103·00	2,947·45	607·70
	Reported by Banks and Gold Dealers	..	..	..	..	..	1,026·29	..	..	1·04	..	
	Total	..	**664·35**	**38,571·00**	**20,930·43**	**6·48**	**2,027·12**	**9,929·50**	**797,707·55**	**548,498·03**	**34,954·70**	

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

Phillips River Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Kundip ..	147, 179	Fair Play leases	..	..	582·68	2,127·76	..	..	..	3,439·27	5,784·85	12·63
Do. ..	136, 137, 138, (139)	(Flag Gold and Copper Mining Co., Ltd.)	..	..	..	..	..	..	..	7,031·50	4,729·53	1,078·38
Do. ..	136, 137, 138 ..	Flag leases	..	..	188·45	185·48 *26·49	..	..	..	2,250·65	2,004·79	..
Do. ..	184	Gem	..	..	564·54	566·95	..	..	..	1,045·19	1,018·77	..
Do. ..	151	(Gem Consolidated)	..	..	..	..	..	..	..	777·50	616·30	..
Do. ..	151, 156	Gem Consolidated leases ..	..	..	632·61	1,052·62	..	..	..	4,413·07	2,913·87	8·00
Do. ..	M.L. 52, 94 ..	Harbour View Gold and Copper Co., Ltd.	..	..	125·19	93·77 *281·73	*360·11	..	..	1,206·67	1,577·73	360·11
Do. ..	M.L. 52, 94 ..	(Harbour View leases)	..	..	..	..	..	..	379·86	3,619·25	1,560·86	61·41
Do. ..	M.L. 52, 94 ..	(Harbour View leases)	..	..	..	..	..	..	..	3,403·50	2,227·62	1·88
Do. ..	98	Hillsborough	..	..	166·58	305·19	..	..	..	2,112·51	4,338·47	118·03
Do. ..	185	Mt. Iron	..	..	..	..	..	..	..	110·00	21·13	..
Do. ..	M.L. 52, 94 ..	(Ravensthorpe G.M. Syndicate, N.L.)	..	..	..	..	..	..	..	1,124·00	433·94	164·98
Do. ..	74	Two Boys	..	..	252·06	288·61	..	..	3·90	10,322·72	6,834·61	..
Do. ..	..	Voided leases	..	..	..	..	..	113·28	172·41	16,014·80	9,274·49	1,991·82
Do. ..	..	Sundry claims	..	..	21·47	14·98	..	79·05	71·58	741·93	425·53	15·45
Mt. Desmond	M.L. 203 ..	(British Flag)	..	..	..	..	..	..	..	..	7·76	..
Do. ..	M.L. 203 ..	(British Flag: Phillips River Gold & Copper Co., Ltd.)	..	..	..	..	..	..	..	..	4·08	..
Do. ..	M.L. 208 ..	(Desmond)	..	..	..	..	..	..	..	..	·77	..
Do. ..	M.L. 208 ..	Desmond	..	..	..	*36·78	..	..	..	..	60·93	..
Do. ..	M.L. 208 ..	(Desmond: Phillips River Gold & Copper Co., Ltd.)	..	..	..	..	..	..	..	..	219·59	14·55
Do. ..	M.L. 95	Elverdton	..	..	..	*222·77	..	..	..	..	317·56	..
Do. ..	M.L. 95	(Elverdton: Phillips River Gold & Copper Co., Ltd.)	..	..	..	..	..	..	..	..	2,569·38	6,537·35
Do. ..	M.L. 95	(Elverdton: Phillips River Option Syndicate, N.L.)	..	..	..	..	..	..	..	..	9·63	..
Do. ..	M.L. 168 ..	(Elverton South: Phillips River Gold and Copper Co., Ltd.)	..	..	..	..	..	..	..	..	·94	..
Do. ..	M.L. 109 ..	(Mt. Desmond)	..	..	..	..	..	..	1·40	..	36·97	..
Do. ..	M.L. 109 ..	(Mt. Desmond: Phillips River Gold & Copper Co., Ltd.)	..	..	..	..	..	..	..	..	228·19	180·06
Do. ..	M.L. 199 ..	(P.L.P.)	..	..	..	..	..	..	..	..	13·69	7·41
Do. ..	M.L. 199 ..	(P.L.P.: Phillips River Gold & Copper Co., Ltd.)	..	..	..	..	..	..	..	..	3·14	..
Do. ..	..	Voided leases	..	..	..	..	..	..	..	9·00	129·10	152·22
Do. ..	..	Sundry claims	..	..	..	*1·71	..	..	..	..	31·21	51·01

Mt. Purchas..	(188)	Boulder Hill	..	..	48·00	32·17	..	..	..	48·00	32·17	..
Do. ..	..	Voided leases	..	..	..	..	..	..	4·38	298·05	260·96	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	4·75	4·68	..
Ravensthorpe	M.L. 361 ..	Last Chance	..	..	..	*2·91	..	..	..	..	2·91	..
Do. ..	M.L. 16	(Marion Martin)	..	..	..	..	..	..	..	..	20·09	..
Do. ..	M.L. 16	Marion Martin	..	..	..	*21·13	..	..	..	..	54·01	..
Do. ..	M.L. 16	(Marion Martin : Phillips River Gold & Copper Co., Ltd.)	..	..	..	..	..	..	..	..	275·33	205·97
Do. ..	(M.L. 175) ..	(Mt. Benson)	..	..	..	..	..	..	..	..	287·88	..
Do. ..	M.L. 363 ..	Mt. Benson	..	..	..	*75·60	..	..	..	..	75·60	..
Do. ..	(M.L. 175) ..	Mt. Benson	..	..	..	*3·37	..	..	..	..	10·23	..
Do. ..	(M.L. 175) ..	(Mt. Benson : Phillips River Gold & Copper Co., Ltd.)	..	..	..	..	..	..	..	..	482·20	199·83
Do. ..	M.L. 15	(Mt. Cattlin)	..	..	..	..	..	..	·49	200·00	85·50	..
Do. ..	M.L. 15	Mt. Cattlin	..	..	..	*42·04	..	..	..	..	90·75	..
Do. ..	M.L. 15	(Mt. Cattlin : Mt. Cattlin Copper Mining Co., Ltd.)	..	..	..	..	..	..	..	1,496·92	..	52·92
Do. ..	M.L. 15	(Mt. Cattlin : Phillips River Gold & Copper Co., Ltd.)	..	..	..	..	..	..	..	..	387·33	..
Do. ..	M.L. 15	(Mt. Cattlin : Phillips River Gold & Copper Co., Ltd.)	..	..	..	..	..	..	..	..	3,077·08	3,814·45
Do. ..	M.L. 342 ..	Surprise	..	..	..	*4·54	..	..	..	..	22·18	..
Do. ..	..	Voided leases	..	..	..	..	..	..	141·31	21,687·99	17,795·41	110·90
Do. ..	..	Sundry claims	..	..	48·00	22·92 *8·24	..	157·82	..	1,966·27	1,105·39	20·65
West River ..	..	Voided leases	..	..	..	..	..	..	..	..	10·34	31·06
Do. ..	..	Sundry claims	..	..	..	*1·21	..	..	..	..	2·95	3·44
		From Goldfield Generally :—										
		Sundry Parcels treated at :—										
		Gem Battery	..	..	..	..	..	..	..	..	138·89	..
		Phillips River Smelter	..	..	..	..	..	..	..	..	261·39	493·66
		Two Boys Works	..	..	..	..	..	..	..	..	100·95	..
		Various Works	..	..	..	..	..	..	..	..	4·76	..
		Reported by Banks and Gold Dealers	..	..	..	..	..	122·05	..	..	..	..
		Total	..	..	2,629·58	5,418·97	360·11	472·20	775·33	81,826·62	73,481·33	15,688·17

* From Copper Ore.

† Donnybrook Goldfield.

Mining Centre.	Number of Lease.	Registered Name of Company or Lease.	Total for 1916.					Total Production.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
Donnybrook..	..	Voided leases	..	..	..	..	..	23·24	..	1,613·30	816·23	..
Do. ..	..	Sundry claims	..	..	..	..	..	..	..	40·00	2·29	..
		Total	..	..	..	..	..	**23·24**	..	**1,653·30**	**818·52**	..

† Abolished 4th March, 1908.

TABLE IV.—*Production of Gold and Silver from all sources, etc.*—continued.

State generally.

MINING CENTRE.	NUMBER OF LEASE.	REGISTERED NAME OF COMPANY OR LEASE.	TOTAL FOR 1916.					TOTAL PRODUCTION.				
			Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.	Alluvial.	Dollied and Specimens.	Ore treated.	Gold therefrom.	Silver.
			Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.	Fine ozs.	Fine ozs.	Tons (2,240lbs.)	Fine ozs.	Fine ozs.
		Sundry parcels treated at :—										
		Fremantle Trading Co., Ltd.—Fremantle	..	..	..	597·50	1,040·59	..	..	..	2,640·65	9,110·39
		Hainault Sulphide Mill—Kalgoorlie	..	..	..	21·28	..	..	..	..	21·28	..
		Hannan's Proprietary Works—Kalgoorlie	..	..	..	..	..	..	..	10·00	·90	..
		Oratava Works—Kalgoorlie	..	..	..	..	..	..	..	..	164·67	..
		Various Works	..	..	..	..	..	..	..	17·00	4,245·57	481·77
		Sundry Specimens	..	..	..	..	..	..	2·87	..	..	..
		Reported by Banks and Gold Dealers	..	..	..	..	..	124·89	153·03	..	..	..
		Total	..	..	..	**618·78**	**1,040·59**	**124·89**	**155·90**	**27·00**	**7,073·07**	**9,592·16**

TABLE V.

COMPARATIVE RETURN OF GOLD BULLION ENTERED FOR EXPORT AND RECEIVED AT THE PERTH BRANCH OF THE ROYAL MINT, DURING THE YEARS 1914, 1915, AND 1916, SHOWING IN FINE OUNCES THE QUANTITY RECORDED EACH MONTH, AND ITS VALUE.

MONTHS AND QUARTERS.	1914.				1915.				1916.			
	EXPORT.	MINT.	TOTAL.	VALUE.	EXPORT.	MINT.	TOTAL.	VALUE.	EXPORT.	MINT.	TOTAL.	VALUE.
	fine ozs.	fine ozs.	fine ozs.	£ s. d.	fine ozs.	fine ozs.	fine ozs.	£ s. d.	fine ozs.	fine ozs.	fine ozs.	£ s. d.
JANUARY	9,762·33	102,260·64	112,022·97	475,343 6 7¼	561·61	98,195·84	98,757·45	419,494 19 8	1,861·01	92,124·30	93,985·31	399,224 4 5
FEBRUARY	8,493·49	94,811·61	103,305·10	438,812 3 5½	606·80	103,661·48	104,268·28	442,903 10 0¼	2,831·61	65,138·38	67,969·99	288,718 3 3¾
MARCH	1,173·04	91,446·40	92,619·44	393,422 7 5¾	1,892·11	91,872·09	93,764·20	398,285 0 1¼	5,600·04	88,393·07	93,993·11	399,257 7 0¾
1st January to 31st March ...	19,428·86	288,518·65	307,947·51	1,308,077 17 6½	3,060·52	293,729·41	296,789·93	1,260,683 9 9½	10,292·66	245,655·75	255,948·41	1,087,199 14 9½
APRIL	8,773·75	90,233·07	99,006·82	420,554 4 9½	1,016·95	101,591·99	102,608·94	435,855 1 5½	2,926·27	87,601·49	90,527·76	384,537 9 7½
MAY	7,138·22	99,068·35	106,206·57	451,136 16 8	2,310·83	101,359·11	103,669·94	440,361 18 3¼	576·78	83,300·89	83,877·67	356,289 13 10¾
JUNE	1,725·28	99,289·93	101,015·21	429,085 6 9	1,273·33	100,035·78	101,309·11	430,333 14 11	2,069 83	92,612·31	94,682·14	402,184 3 4
1st January to 30th June ...	37,066·11	577,110·00	614,176·11	2,608,854 5 9	7,661·63	596,716·29	604,377·92	2,567,234 4 5¼	15,865·54	509,170·44	525,035·98	2,230,211 1 7¾
JULY	8,293·67	88,305·48	96,599·15	410,327 2 1¾	554·79	98,859·42	99,414·21	422,284 14 5¼	912·48	91,725·00	92,637·48	393,499 0 0¾
AUGUST	101·39	102,346·09	102,447·48	435,169 4 8¼	1,079·11	99,941·49	101,020·60	429,108 4 8	2,212·39	89,522·54	91,734·93	389,665 4 3½
SEPTEMBER	1,534·96	103,577·74	105,112·70	446,490 7 4½	2,018·92	100,833·07	102,851·99	436,887 9 8	3,892·46	85,978·47	89,870·93	381,747 8 11
1st January to 30th September	46,996·13	871,339·31	918,335·44	3,900,840 19 11½	11,314·45	896,350·27	907,664·72	3,855,514 13 2½	22,882·87	776,396·45	799,279·32	3,395,122 14 11
OCTOBER	2,027·55	99,366·30	101,393·85	430,693 13 11¾	2,345·81	100,238·47	102,584·28	435,750 6 5¾	958·74	82,732·46	83,691·20	355,497 12 5
NOVEMBER	1,217·39	109,282·40	110,499·79	469,373 5 5½	797·16	99,205·88	100,003·04	424,785 18 3¼	1,015·45	87,322·27	88,337·72	375,234 15 8
DECEMBER	1,213·58	101,534·16	102,747·74	436,444 13 1¾	2,883·05	96,976·61	99,859·66	424,176 17 5¾	1,885·11	88,204·69	90,089·80	382,677 2 11
Total	**51,454·65**	**1,181,522·17**	**1,232,976·82**	**5,237,352 12 6½**	**17,340·47**	**1,192,771·23**	**1,210,111·70**	**5,140,227 15 5¼**	**26,742·17**	**1,034,655·87**	**1,061,398·04**	**4,508,532 5 11**

TABLE

TOTAL OUTPUT OF GOLD BULLION ENTERED FOR EXPORT, AND RECEIVED AT THE PERTH BRANCH OF THE MINT, AND QUANTITY OBTAINED EACH YEAR FROM THE RESPECTIVE

Year.	KIMBERLEY.			PILBARA.			*a* WEST PILBARA.			ASHBURTON.		
	Export.	Mint.	Total.	Export.	Mint.	Total.	Export.	Mint.	Total.	Export.	Mint.	Total.
	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.
1886 ...	270·17	...	270·17	...	...	...	...	...	...	...	...	...
1887 ...	4,359·37	...	4,359·37	...	...	...	...	...	...	...	...	...
1888 ...	3,124·82	...	3,124·82	...	...	...	...	...	...	...	...	...
1889 ...	2,204·28	...	2,204·28	9,992·63	...	9,992·63	...	...	...	...	...	...
1890 ...	4,002·42	...	4,002·42	14,363·01	...	14,363·01	...	...	...	...	...	...
1891 ...	2,415·07	...	2,415·07	10,623·32	...	10,623·32	...	...	...	750·31	...	750·31
1892 ...	974·08	...	974·08	11,533·84	...	11,533·84	...	...	...	·63	...	·63
1893 ...	1,450·77	...	1,450·77	10,465·43	...	10,465·43	...	...	...	418·43	...	418·43
1894 ...	526·59	...	526·59	14,541·20	...	14,541·20	...	...	...	255·20	...	255·20
1895 ...	784·27	...	784·27	17,464·65	...	17,464·65	...	...	...	483·76	...	483·76
1896 ...	797·85	...	797·85	10,565·27	...	10,565·27	...	...	...	598·64	...	598·64
1897 ...	495·67	...	495·67	10,695·67	...	10,695·67	...	...	...	928·75	...	928·75
1898 ...	257·54	...	257·54	10,433·27	...	10,433·27	1,814·48	...	1,814·48	402·46	...	402·46
1899 ...	728·52	275·94	1,004·46	17,888·69	473·96	18,362·65	1,749·39	...	1,749·39	214·26	252·10	466·36
1900 ..	29·16	576·14	605·30	8,629·83	6,703·99	15,333·82	522·76	122·85	645·61	44·82	424·27	469·09
1901 ...	...	601·26	601·26	36·68	10,223·75	10,260·43	78·38	357·46	435·84	7·70	50·24	57·94
1902 ...	1·48	378·02	379·50	...	9,199·50	9,199·50	...	2,822·20	2,822·20	..	...	...
1903 ...	...	433·71	433·71	2·26	12,049·52	12,051·78	...	5,493·23	5,493·23	...	114·67	114·67
1904 ...	...	31·51	31·51	...	6,931·27	6,931·27	...	4,320·82	4,320·82	...	125·96	125·96
1905 ...	...	545·95	545·95	48·33	13,353·49	13,401·82	...	1,164·92	1,164·92	...	42·05	42·05
1906 ..	...	617·77	617·77	...	4,956·14	4,956·14	...	755·35	755·35	...	138·84	138·84
1907 ...	...	362·06	362·06	...	4,130·48	4,130·48	...	332·30	332·30	...	41·85	41·85
1908 ...	...	338·00	338·00	...	8,172·26	8,172·26	...	1,076·68	1,076·68	...	45·87	45·87
1909 ...	...	168·95	168·95	...	5,529 19	5,529·19	...	1,396·22	1,396·22	...	228·16	228·16
1910 ..	...	487 25	487·25	...	5,894·32	5,894·32	63·66	1,387·66	1,451·32	...	173·06	173·06
1911 ...	...	148·53	148·53	...	4,874·00	4,874·00	58·00	819·35	877·35	...	270·68	270·68
1912 ...	...	294·55	294·55	...	6,274·04	6,274·04	...	747·34	747·34	...	38·73	38·73
1913 ...	...	266·41	266·41	...	4,207·37	4,207·37	...	1,237·85	1,237·85	...	39·26	39·26
1914 ...	...	196·46	196·46	...	5,544·64	5,544·64	...	1,262·73	1,262·73	...	46·14	46·14
1915 ...	...	220·94	220·94	...	7,411·06	7,411·06	·64	1,239·94	1,240·58	...	16·63	16·63
1916 ...	...	249·58	249·58	...	6,700·93	6,700·93	...	560·79	560·79	...	31·16	31·16
Total ...	22,422·06	6,223·03	28,645·09	147,284·08	122,629·91	269,913·99	4,287·31	25,097·69	29,385·00	4,104·96	2,079·67	6,184·63

Year.	*d* YALGOO.			*c* MT. MARGARET.			*e* NORTH COOLGARDIE.			*f* BROAD ARROW.		
	Export.	Mint.	Total.	Export.	Mint.	Total.	Export.	Mint.	Total.	Export.	Mint.	Total.
	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.
1886 ...	...	...	...	...	...	...	...	...	...	...	...	...
1887 ...	...	...	...	...	...	...	...	...	...	...	...	...
1888 ...	...	...	...	...	...	...	...	...	...	...	...	...
1889 ...	...	...	...	...	...	...	...	...	...	...	...	...
1890 ...	...	...	...	...	...	...	...	...	...	...	...	...
1891 ...	...	...	...	...	...	...	...	...	...	...	...	...
1892 ...	...	...	...	...	...	...	...	...	...	...	...	...
1893 ...	...	...	...	...	...	...	...	...	...	...	...	...
1894 ...	...	...	...	...	...	...	...	...	...	...	...	...
1895 ...	...	...	...	...	...	...	...	...	...	...	...	...
1896 ...	...	...	...	...	...	...	15,351·71	...	15,351·71	...	...	...
1897 ..	1,819·81	...	1,819·81	7,770·22	...	7,770·22	66,697·57	...	66,697·57	3,720·87	...	3,720·87
1898 ...	3,360·44	...	3,360·44	38,706·19	...	38,706·19	63,181·09	...	63,181·09	22,035·17	...	22,035·17
1899 ...	5,089·83	4,643·00	9,732·83	58,064·19	15,128·98	73,193·17	54,489·26	40,059·43	94,548·69	32,224·04	7,607·18	39,831.22
1900 ...	462·05	7,918·53	8,381·08	65,998·38	60,607·45	126,605·83	15,660·11	79,340·01	95,000·12	29,955·07	12,860·80	42,815·87
1901 ...	6·80	8,330·42	8,337·22	65,352·46	114,840·17	180,192·63	6,620·82	122,806·58	129,427·40	9,313·50	17,066·09	26,379·59
1902 ...	483·32	4,396·91	4,880·23	61,846·01	124,306·49	186,152·50	4,064·18	156,856·06	160,920·24	2,128·49	13,665·52	15,794·01
1903 ...	47·08	1,430·59	1,477·67	65,416·09	125,437·19	190,853·28	1,348·74	167,153·90	168,502·64	5,201·12	18,245·41	23,446·53
1904 ...	...	2.796·23	2,796·23	63,180·89	119,889·93	183,070·82	1,614·64	139,518·37	141,133·01	318·83	20,660·78	20,979·61
1905 ...	76·75	4,549·25	4,626·00	34,949·75	153,203·05	188,152·80	1,193·71	145,615·47	146,809·18	603·66	15,300·58	15,904·24
1906 ...	...	4,883·17	4,883·17	21,869·88	137,022·23	158,892·11	1,140·45	107,890·76	109,031·21	1,245·75	16,841·70	18,087·45
1907 ...	...	3,199·60	3,199·60	23,989·43	154,059 92	178,049·35	13,240·87	72,701·05	85,941·92	4,292·34	13,610·81	17,903·15
1908 ...	...	456·43	456·43	19,324·02	147,879 90	167,203·92	6,701·28	76,700·77	83,402·05	3,613·64	7,946·35	11,559·99
1909 ...	...	626·80	626·80	24,123·15	135,914·94	160,038.09	6,389·19	66,631·79	73,020·98	6,711·37	4,863·50	11,574·87
1910 ...	...	725·79	725·79	28,507·31	131,976·01	160,483·32	1,889·24	60,886·71	62,775·95	...	321·40	321·40
1911 ...	...	294·80	294·80	21,302·54	131,280·97	152,583·51	209·17	60,270·42	60,479·59	176·57	280·54	457·11
1912 ...	...	1,169·18	1,169·18	4,835·73	101,353·79	106,189·52	53·68	49,946·08	49,999·76	...	4·33	4·33
1913 ...	...	2,837·97	2,837·97	157·14	89,408·71	89,565·85	...	60,855·69	60,855·69	...	8,947·58	8,947·58
1914 ...	...	1,403·35	1,403·35	184·66	103 550·71	103,735·37	...	73,943·49	73,943·49	...	3,074·74	3,074·74
1915 ...	...	4,218·34	4,218 34	68·20	107,934·53	108,002·73	638·99	56,372·00	57,010·99	...	14,447·56	14,447·56
1916 ...	...	4,336 27	4,336·27	642·48	111,277·58	111,920·06	...	39,714·46	39,714·46	...	6,815·74	6,815·74
Total ...	11,346·58	58,216·63	69,563·21	606,288·72	2,065,072·55	2,671,361·27	260,484·70	1,577,263·04	1,837,747·74	121,540·42	182,560·61	304,101·03

Year.	*h* DUNDAS.			*i* PHILLIPS RIVER.			¶ DONNYBROOK.			STATE GENERALLY.		
	Export.	Mint.	Total.	Export.	Mint.	Total.	Export.	Mint.	Total.	Export.	Mint.	Total.
	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.
1886 ...	...	...	...	...	...	...	...	...	...	...	...	...
1887 ...	...	...	...	...	...	...	...	...	...	...	...	...
1888 ...	...	...	...	...	...	...	...	...	...	...	...	...
1889 ...	...	...	...	...	...	...	...	...	...	...	...	...
1890 ...	...	...	...	...	...	...	...	...	...	...	...	...
1891 ...	...	...	...	...	...	...	...	...	...	...	...	...
1892 ...	...	...	...	...	...	...	...	...	...	...	...	...
1893 ...	132·37	...	132·37	...	...	...	...	...	...	...	...	...
1894 ...	204·31	...	204·31	...	...	...	...	...	...	...	...	...
1895 ...	216·40	...	216·40	...	...	...	...	...	...	...	...	...
1896 ...	3,891·77	...	3,891·77	...	...	...	...	...	...	...	...	...
1897 ...	17,275·36	...	17,275·36	...	...	...	...	...	...	...	...	...
1898 ...	28,655·52	...	28,655·52	...	...	...	...	...	...	...	...	...
1899 ...	39,980·65	423·71	40,404·36	...	...	...	277·27	175·49	452·76	...	809·07	809·07
1900 ...	8,144·72	28,254·19	36,398·91	...	...	...	...	237·56	237·56	5,644·83	1,450·08	7,094·91
1901 ...	5,411·46	29,752·16	35,163·62	...	...	...	...	4·20	4·20	215·91	1,511·63	1,727·54
1902 ...	4,401·31	26,714·16	31,115·47	2,946·53	4,422·56	7,369·09	4·94	57·64	62·58	7·77	2,115·52	2,123·29
1903 ...	1,311·53	33,905·88	35,217·41	2,136·09	5,441·68	7,577·77	...	82·64	82·64	53·44	2,839·44	2,892·88
1904 ...	1,834·03	31,347·06	33,181·09	936·76	2,047·59	2,984·35	...	...	...	·86	1,344·25	1,345·11
1905 ...	1,324·48	27,411·31	28,735·79	2,060·46	1,458·44	3,518·90	...	...	...	70·41	1,515·58	1,585·99
1906 ...	1,111·18	20,198·62	21,309·80	945·65	1,439·03	2,384·68	...	...	...	284·38	763·15	1,047·53
1907 ...	...	22,830·71	22,830·71	4,043·86	1,514·90	5,558·76	...	...	...	799·48	285·47	1,084·95
1908 ...	...	41,203·39	41,203·39	969·00	3,631·02	4,600·02	...	...	...	15·91	1,953·56	1,969·47
1909 ...	...	35,894·72	35,894·72	4,025·81	3,605·75	7,631·56	...	..	..	46·78	455·34	502·12
1910 ...	...	43,260·55	43,260·55	3,271·89	5,031 60	8,303·49	...	...	...	48·67	222·89	271·56
1911 ...	...	48,361·14	48,361·14	1,374.96	4,241·05	5,616·01	...	...	...	209·03	129·01	338·04
1912 ...	...	38,373·40	38,373·40	...	3,292·05	3,292 05	...	...	...	687·32	142·72	830·04
1913 ...	...	27,090·46	27,090·46	...	3,515·02	3,515·02	...	...	...	385·58	230·17	615·75
1914 ...	...	27,803·51	27,803·51	...	395·67	395·67	...	...	...	280·34	287·86	568·20
1915 ...	...	24,148·61	24,148·61	2,011·73	263·06	2,274·79	...	...	...	188·32	318·59	506·91
1916 ...	...	21,956·42	21,956·42	4,119·93	181·13	4,301·06	..	...	...	8,188,93	357·85	8,546·78
Total ...	113,895·09	528,930·00	642,825·09	28,842·67	40,430.55	69,323·22	282·21	557·53	839·74	17,127·96	16,732·18	33,860·14

a Prior to 1st May, 1898, included with Pilbara. *d* Prior to 1st April, 1897, included with Murchison. *c* From 1st August, 1897.
e Prior to 1st May, 1896, included with Coolgardie. *f* From 1st September, 1897. *h* Prior to 1893 included with Yilgarn.
i Prior to 1902 included in State generally. ¶ Abolished 4th March, 1908.

VI.

ROYAL MINT, FROM 1ST JANUARY, 1886, TO 31ST DECEMBER, 1916, SHOWING, IN FINE OUNCES, THE GOLDFIELDS, AND THE TOTAL ANNUAL VALUE.

Year.	*b* GASCOYNE.			*c* PEAK HILL.			*c* EAST MURCHISON.			MURCHISON.		
	Export.	Mint.	Total.	Export.	Mint.	Total.	Export.	Mint.	Total.	Export.	Mint.	Total.
	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.
1886 ..	...	...	...	...	...	...	...	...	...	...	...	...
1887 ...	...	...	...	...	...	...	...	...	...	...	...	...
1888 ...	...	...	...	...	...	...	...	...	...	...	...	...
1889 ...	...	...	...	...	...	...	...	...	...	...	...	...
1890 ...	...	...	...	...	...	...	...	...	...	...	...	...
1891 ...	...	...	...	...	..	...	..	...	...	1,846·83	...	1,846·83
1892 ...	...	...	...	...	...	...	...	...	...	21,789·19	...	21,789·19
1893 ...	...	...	...	...	...	...	...	...	...	18,974·77	...	18,974·77
1894 ...	...	...	...	...	...	...	...	...	...	47,365·54	...	47,365·54
1895 ...	...	...	...	...	...	...	...	...	...	58,575·66	...	58,575·66
1896 ...	...	...	...	...	...	...	...	...	...	63,769·17	...	63,769·17
1897 ...	...	...	...	4,571·38	...	4,571·38	8,457·34	...	8,457·34	74,154·67	...	74,154·67
1898 ...	...	...	...	12,288·93	...	12,288·93	35,393·19	...	35,393·19	83,794·22	...	83,794·22
1899 ...	297·96	76·63	374·59	14,064·24	14,558·64	28,622·88	33,826·08	3,361·95	37,188·03	61,586·09	22,074·71	83,660·80
1900 ..	...	77·02	77·02	9,528·14	16,119·79	25,647·93	23,545·54	28,671·55	52,217·09	53,815·70	43,423·77	97,239·47
1901 ...	6·59	16 82	23·41	231·85	19,352·44	19,584·29	29,780·63	40,557·07	70,337·70	92,149·56	38,996·10	131,145·66
1902 ...	...	107·29	107·29	85·93	28,044·55	28,130·48	25,450·63	53,583·10	79,033·73	141,731·91	40,926·08	182,657·99
1903 ...	...	30·76	30·76	2 8·60	29,395·32	29,395·92	21,878·06	65,334·05	87,212·11	154,012·88	54,348·53	208,361·41
1904 ...	...	10·95	10·95	...	17,475·33	17,475·33	21,296·85	64,550·36	85,847·21	165,232·67	52,683·16	217,915·83
1905 ...	...	21·34	21·34	125·01	13,371·75	13,496·76	1,361·68	89,249·93	90,611·61	131,656·36	92,742·05	224,398·41
1906 ...	...	78 73	78·73	...	2,038·62	2,038·62	140 68	95,168·89	95,309 57	79,172·69	109,936·80	189,109·49
1907 ...	...	8·44	8·44	...	5,918·75	5,918·75	2,891·66	117,735·69	120,627·35	54,811·74	115,497·50	170,309·24
1908 ...	...	31·82	31·82	..	9,864·36	9,864·36	10,701·24	137,028·14	147,729·38	45,483·05	111,510·54	157,023·59
1909 ...	...	7·37	7·37	...	7,322·29	7,322·29	11,599·83	136,637·67	148,237·50	24,682·47	107,167·27	131,849·74
1910 ...	...	26 31	26·31	...	3,057·25	3,057·25	1,557·78	137,190·44	138,748·22	19,568·85	111,414·23	130,983·08
1911 ...	...	7·87	7·87	...	134·23	134·23	11·77	96,442·87	96,454·64	13,919·70	109,444·91	123,364·61
1912 ...	...	6·55	6·55	...	196·11	196·11	...	90,397·82	90,397·82	6,377·17	105,245·32	111,622·49
1913 ...	...	..	...	...	258·10	258·10	195·78	80,122·11	80,317·89	5,749·47	115,694·96	121,444·43
1914 ..	...	4·11	4·11	...	85·66	85·66	354·75	65,609·61	65,964·36	6,443·82	111,522·67	118,266·49
1915 ...	...	65·55	65·55	·56	446·00	446·56	268·57	52,926·34	53,194·91	8,669·79	96,610·36	10 .280·15
1916 ...	...	60.53	60·53	...	155·01	155·01	902·67	30,284·85	31,187·52	6,694·02	77,369·19	84,063·21
Total ...	304·55	638·09	942·64	41,099·64	167,794·20	208,893·84	229,614·73	1,384,852·44	1,614,467·17	1,442,027·99	1,516,938·15	2,958,966·14

Year.	*e* NORTH-EAST COOLGARDIE.			*e* EAST COOLGARDIE.			*g* COOLGARDIE.			YILGARN.		
	Export.	Mint.	Total.	Export.	Mint.	Total.	Export.	Mint.	Total.	Export.	Mint.	Total.
	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.	fine ozs.
1886 ...	...	...	...	...	...	...	...	...	...	...	...	...
1887 ...	...	...	...	...	...	...	...	...	...	...	...	...
1888 ...	...	...	...	...	...	...	...	...	...	...	...	...
1889 ...	...	...	...	...	...	...	...	...	...	1,662·61	...	1,662·61
1890 ...	...	...	...	...	...	...	...	...	...	2,036·99	...	2,036·99
1891 ...	...	...	...	...	...	...	...	...	...	11,480·61	...	11,480·61
1892 ...	...	...	...	...	...	...	...	...	...	18,973·91	...	18,973·91
1893 ...	...	...	...	...	...	...	...	...	...	67,760·73	...	67,760·73
1894 ...	...	...	...	...	...	...	94,227·58	...	94,227·58	28,178·31	...	28,178·31
1895 ...	...	...	...	...	...	...	111,919·21	...	111,919·21	17,666·25	...	17,666·25
1896 ...	3,679·63	...	3,679·63	76,297·42	...	76,297·42	61,848·03	...	61,848·03	14,819·20	...	14,819·20
1897 ...	29,437·40	...	29,437·40	268,411·95	...	268,411·95	93,312·00	...	93,312·00	16,097·78	...	16,097·78
1898 ...	112,039·58	...	112,039·58	402,847·31	...	402,847·31	113,816·75	...	113,816·75	10,463·35	...	10,463·35
1899 ...	57,674·82	14,940·55	72,615·37	796,696·63	29,567·58	826,264·21	101,589·22	24,700·89	126,290·11	6,919·11	8,114·60	15,033·71
1900 ...	10,400·57	36,233·90	46,634·47	600,328·29	125,105·24	725,433·53	60,988·33	46,167·62	107,155·95	683·47	25,628·83	26,317·30
1901 ...	6,798·56	39,024·18	45,822 74	698,042·56	238,840·93	936,883·49	9,584·35	70,720·21	80,304·56	49·15	26,677·85	26,727·00
1902 ...	549·07	46.316·67	46,865·74	460,462·26	546,964·68	1,007,426·94	2,872·61	80,887·85	83,760·46	3·31	22,232·80	22,236·11
1903 ...	4,308·99	36,145·75	40,454·74	570,447·27	580,790·97	1,151,238·24	7,318·63	69,681·38	77,000·01	...	22,761·00	22,761·00
1904 ..	55·09	33,262·10	33,317·19	555,016·48	534,579·88	1,139,596·36	1,100·07	61,073·11	62,173·18	28·87	29,965·37	29,994·24
1905 ...	2,187·11	40,220·19	42,477·30	479,254·37	613,103·20	1,092,357·57	177·80	62,066·34	62,244·14	...	25,291 11	25,291·11
1906 ..	1,590·31	30.943·82	32,534·13	454,645·84	612,546·81	1,067,192·65	103·78	60,474·81	60,578·59	...	25,570·77	25.570·77
1907 ...	3,132·83	25,399·75	28,532·58	323,550·05	643,139·11	966,689·16	1,050·88	61,670·65	62,721·53	...	23,311·41	23,311·41
1908 ...	925·44	23,902·44	24,827 88	267,748·62	657,936·89	925,685·51	871·76	40,982·65	41,854·41	...	20,866·10	20,866·10
1909 ...	1,774·45	24,566·87	26,341·32	306,462·21	620,612·07	927,074·28	350·91	36,311·70	36,662·61	204·41	20,958·23	21,162·64
1910 ...	...	19,082·01	19,082·01	179,062 94	653,211·05	832,273·99	...	38,264·02	38,264·02	...	24,049·13	24,049·13
1911 ...	...	18,528·97	18.528·97	123,160·54	686,386·80	809,547·34	...	33,840·93	33,840·93	...	14,683·17	14,688·17
1912 ...	194·22	14.475·38	14,669·60	71,429·00	717,356·45	788,785·45	...	42,327·65	42,327·65	...	27,439·38	27,439·38
1913 ...	...	11,210·69	11,210·69	70,078·57	722,593·22	792,671·79	...	35,593·00	35,593·00	9,688·59	63,679·58	73,368·17
1914 ...	...	5,210·22	5,210·22	40,393 05	677,609·26	718,002·31	...	21,957·78	21,957·78	3,798·03	81,713 56	85,511·59
1915 ...	...	8,773·97	8,773 97	5,493·67	709,061·79	714,555·46	...	17,590·21	17,590·21	...	90,705·75	90,705·75
1916 ...	...	1,996·06	1,996·06	6,194·14	635,425·68	641,619,82	...	12,381·82	12,381·82	...	84,8 0·82	84,800·82
Total ...	234.748·07	430.233·52	664,981·59	6,756.023·17	10,054,831·61	16,810,854·78	661,131·91	816,692·62	1,477,824·53	210,519·68	638,454·46	848,974·14

Year.	GRAND TOTAL.			
	Export.	Mint.	Total.	Value.
	fine ozs.	fine ozs.	fine ozs.	£ s. d.
1886 ...	270·17	...	270 17	1,147 12 2½
1887 ...	4,359·37	...	4,359·37	18.517 8 6½
1888 ...	3,124·82	...	3,124·82	13.273 7 10½
1889 ...	13,859·52	...	13.859·52	58.871 9 11½
1890 ...	20,402·42	...	20,402·42	86.663 19 5
1891 ...	27,116·14	...	27,116·14	115.182 0 10½
1892 ...	53,271·65	...	53,271·65	226.283 11 8
1893 ...	99,202·50	...	99,202·50	421.385 8 8½
1894 ...	185,298·73	...	185,298·73	787.098 19 6
1895 ...	207,110·20	...	207,110·20	879.748 4 2½
1896 ...	251,618·69	...	251,618·69	1.068.808 5 2
1897 ...	603,846·44	...	603,846·44	2,564.976 12 9½
1898 ...	939,489·49	...	939,489·49	3,990.697 13 10
1899 ...	1,283,360·25	187,244·41	1,470,604·66	6,246.731 10 7½
1900 ...	894,387·27	519,923·59	1,414,310·86	6,007.610 13 4½
1901 ...	923,686·96	779,729·56	1,703,416·52	7,235.653 9 1
1902 ...	707,039·75	1,163,997·60	1,871,037·35	7,947.661 9 7½
1903 ...	833,685·78	1,231,115·62	2,064,801·40	8,770.718 17 0½
1904 ...	810,616·04	1,172,614·03	1.983,230·07	8,424.225 17 2¾
1905 ...	655,039·88	1,300,226·00	1.955,315·88	8,305.653 18 5½
1906 ...	562.250·59	1,232,296·01	1.794,546·60	7,622.749 8 7
1907 ...	431,803·14	1,265,750·45	1.697,553·59	7,210,749 6 2½
1908 ...	356,353·96	1,291,557·17	1.647,911·13	6,999.881 10 10½
1909 ...	386.370·58	1,208,898·83	1.595,269·41	6.776.273 14 7¼
1910 ...	233,970·34	1.236,661·68	1.470,632·02	6.246.847 15 0
1911 ...	160,422·28	1,210,445·24	1.370,867·52	5,823.075 1 9¼
1912 ...	83,577 12	1,199,080·87	1.282,657·99	5.448.384 16 5¼
1913 ...	86.255·13	1,227,788·15	1.314,043·28	5.581.701 1 2½
1914 ...	51.454·65	1,181,522·17	1.232,976·82	5,237,352 12 6¼
1915 ...	17.340·47	1,192,771·23	1,210.111·70	5,140,227 15 5½
1916 ...	26,742·17	1,034.655·87	1.061,398·04	4.508,532 5 11
TOTAL ...	10,913,376·50	19,636,278·48	30,549 654·98	129,766,685 18 11

b. Prior to March, 1899, included with Ashburton. *c*. From 1st August, 1897. *e*. Prior to 1st May, 1896, included with Coolgardie. *g*. Declared 5th April, 1894, to which date included with Yilgarn.

TABLE VII.

MONTHLY RETURN OF GOLD, CONTAINED IN BULLION, FURNACE PRODUCTS, AND ORE, ENTERED FOR EXPORT DURING 1916.

MONTH.	UNITED KINGDOM.			VICTORIA.			NEW SOUTH WALES.			SOUTH AUSTRALIA.			**TOTALS.**		
	Bullion.	Furnace Products.	Ore.	Bullion.	Furnace Products.	Ore.	Bullion.	Furnace Products.	Ore.	Bullion.	Furnace Products.	Ore.	**Bullion.**	**Furnace Products.**	**Ore.**
1916.	Fine ozs.	Estimated fine ozs.	Estimated fine ozs.	Fine ozs.	Estimated fine ozs.	Estimated fine ozs.	Fine ozs.	Estimated fine ozs.	Estimated fine ozs.	Fine ozs.	Estimated fine ozs.	Estimated fine ozs.	Fine ozs.	Estimated fine ozs.	Estimated fine ozs.
January	..	..	..	1,294·81	..	..	566·20	..	..	..	..	..	**1,861·01**	..	..
February	..	518·25	..	400·00	..	..	630·00	..	..	..	1,283·36	..	**1,030·00**	**1,801·61**	..
March	..	..	..	341·36	..	..	..	..	..	470·00	4,788·68	..	**811·36**	**4,788·68**	..
April	..	..	..	329·59	..	..	..	479·79	..	..	2,116·89	..	**329·59**	**2,596·68**	..
May	..	..	..	576·78	..	..	..	..	..	..	..	..	**576·78**	..	..
June	..	..	..	423·76	..	..	..	416·00	..	..	1,230·07	..	**423·76**	**1,646·07**	..
July	..	..	..	270·00	..	..	..	..	..	..	642·48	..	**270·00**	**642·48**	..
August	..	..	..	682·72	..	..	..	627·00	..	..	902·67	..	**682·72**	**1,529·67**	..
September	..	..	..	941·00	..	..	..	..	..	..	2,951·46	..	**941·00**	**2,951·46**	..
October	..	..	..	517·00	..	..	..	256·70	..	..	185·04	..	**517·00**	**441·74**	..
November	..	..	..	447·00	63·24	..	..	15·54	..	..	489·67	..	**447·00**	**568·45**	..
December	..	..	..	470·00	..	..	..	1,138·49	..	..	276·62	..	**470·00**	**1,415·11**	..
TOTALS	..	518·25	..	6,694·02	63·24	..	1,196·20	2,933·52	..	470·00	14,866·94	..	**8,360·22**	**18,381·95**	..

TABLE VIII.

RETURN OF GOLD BULLION RECEIVED AT THE PERTH BRANCH OF THE ROYAL MINT FROM MAY, 1899, TO THE 31ST DECEMBER, 1916, SHOWING IN GROSS OUNCES THE QUANTITY OBTAINED FROM THE RESPECTIVE GOLDFIELDS AND OTHER COUNTRIES, AND THE ACTUAL VALUE THEREOF.

Year.	Kimberley.	Pilbara.	West Pilbara.	Ashburton.	Gascoyne.	Peak Hill.	East Murchison.	Murchison.	Yalgoo.	Mt. Margaret.	North Coolgardie.	Broad Arrow.	North-East Coolgardie.
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.
1899	308·45	529·80	...	281·80	85·65	16,274·00	3.758·07	24,675·64	5,190·05	16,911·54	44,779·38	8,503·50	16,700·90
1900	644·02	7,493·88	137·33	474·26	86·10	18,019·08	32,049·74	48,540·12	8,851·52	67,748·45	88,688·14	14,376·10	40,503·12
1901	663·37	11,279·93	394·38	55·42	18·56	21,351·67	44,746·88	43,024·65	9,191·01	126,703·91	135,493·31	18,829·13	43,055·63
1902	439·93	10,706·03	3,284·37	...	124·86	32,637·17	62,357·98	47,628·18	5,116·94	144,663·12	182,543·06	15,903·42	53,901·58
1903	511·75	14,217·53	6,481·58	135·30	36·29	34,684·27	77,089·29	64,127·18	1,687·99	148,006·49	197,229·08	21,528·20	42,649·25
1904	37·69	8,293·58	5,170·06	150·73	13·10	20,909·99	77,237·31	63,037·71	3,345·82	143.453·51	166,939·82	24,721·53	39,799·55
1905	656·34	16,053·42	1,400·46	50·54	25·65	16,075·36	107,295·17	111,493·34	5,469·06	184,178·87	175,057·14	18,394·17	48,352·22
1906	785·23	6,007·79	915·63	168·30	95·43	2,471·21	115 363·22	133,264·79	5,919·37	166,097·63	130,784·60	20,415·43	37,509·91
1907	431·72	4,924·97	396·22	49·89	10·06	7,057·22	140,382·15	137,713·43	3,815·06	183,693·29	86,685·09	16,228·85	30,285·39
1908	400·19	9,676·11	1,292·97	54·32	37·68	11,679·58	162,243·76	132,066·00	2,625·14	175,092·47	90,815·08	9,408·64	28,300·91
1909	203·59	6,662·82	1,682·49	274·93	8·89	8,823·58	164,652·43	129,139·74	755·31	163,781·55	80,293·29	5,860·66	29,603·84
1910	586·44	7,094·46	1,670·20	208·31	31·67	3,679·72	165,123·37	134,098·94	873·58	158,847·24	73,283·66	386·84	22,967·23
1911	183·78	6,033·33	1,014·60	334·38	9·78	165·36	119,267·86	135,342·96	363·85	162,319·77	74,536·34	346·78	22,917·38
1912	361·11	7,674·55	912·60	47·77	8·09	237·96	110.585·25	128,679·43	1,410·49	124,123·10	61,018·13	5·32	17,705·86
1913	319·55	5,048·77	1,491·66	47·37	...	564·67	96,270·04	139,021·56	3,410·52	107·391·67	73,160·41	10,814·52	13,452·90
1914	238·83	6,750·56	1,538·31	56·09	5·00	104·45	79,785·02	135,990·48	1,705·85	125,937·60	89,904·49	3,727·56	6,318·12
1915	270·76	9,084·52	1,540·93	20·50	81·05	550·77	65,111·82	118.861·14	5,208·56	132,819.64	69,318·34	17,810·14	10,808·78
1916	306·92	8,265·75	692·68	38·34	74·07	190·21	37,169·30	95,071·24	5,320,33	136,731·10	48,799·86	8,415·40	2,441·68
Total	**7,349·67**	**145,797·80**	**30,016 47**	**2,448·25**	**751·93**	**195,476·27**	**1,660,488·66**	**1,821,776·53**	**70.260·45**	**2,468,500·95**	**1,869,329·22**	**215,676·19**	**507,274·25**

Year.	East Coolgardie.	Coolgardie.	Yilgarn.	Dundas.	* Phillips River.	Donnybrook. †	State generally.	TOTAL. Western Australia. Quantity.	Western Australia. Actual Value.	TOTAL. Other Countries. Quantity.	Other Countries. Actual Value.	GRAND TOTAL. Quantity.	Grand Total. Actual Value.
	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	ozs.	£ s. d.	ozs.	£ s. d.	ozs.	£ s. d.
1899	33,051·33	27,611·24	9,070·70	473·63	...	196·17	904·39	**209,306·24**	**762,546 11 6**	103·46	336 18 3	209,409·70	762,883 9 9
1900	139,845·60	51,607·26	28,648·51	31,583·20	...	265·55	1,620·93	**581,182·91**	**2,096,212 14 2**	17·49	44 15 7	581,200·40	2,096,257 9 9
1901	263,514·75	78,026·07	29,433·84	32,825·75	...	4·64	1,667·79	**860,280·69**	**3,033,311 0 4**	92·25	297 5 8	860,372·94	3.033,608 6 0
1902	636,536·52	94,134·17	25,873·68	31,088·91	5,146·80	67·08	2,461·98	**1,354,615·78**	**4,791,303 18 1**	16·27	38 10 2	1,354,632·05	4,791,342 8 3
1903	685,289·82	82,218·79	26,856·28	40,006·39	6,420·79	97·52	3,350·32	**1,452,624·11**	**5,139,852 11 9**	294·78	703 14 10	1,452,918·89	5,140,556 6 7
1904	699,475·35	73,076·66	35,854·87	37,508·11	2,450·03	...	1,608·47	**1,403,083·89**	**4,955,870 9 0**	263·05	614 11 9	1,403,346·94	4,956,485 0 9
1905	737,065·14	74,615·36	30,404·65	32,953·56	1,753·32	...	1,821·99	**1,563,115·76**	**5,475,841 2 10**	525·80	1,491 0 7	1,563,641·56	5,477,332 3 5
1906	742,525·99	73,307·24	30,996·76	24,484·65	1,744·38	...	925·10	**1,493,782·66**	**5,330,245 12 1**	413·86	974 16 0	1,494,196·52	5,331,220 8 1
1907	766,846·83	73,532·99	27,795·35	27,222·21	1,806·30	...	340·39	**1,509,217·41**	**5,416,812 0 7**	640·51	1,663 4 3	1,509,857·92	5 418.475 4 10
1908	779,009·10	48,524·18	22,835·58	48,785·54	4,299·19	...	2,080·42	**1,529,226·86**	**5,386,858 15 8**	1,313·84	3,885 2 3	1,530,540·70	5,390,743 17 11
1909	747,856·04	43,756·68	25,255·30	43,254·22	4,345·04	...	548·71	**1,456,759·11**	**5,143,035 17 1**	882·56	1,109 6 7	1,457,641·67	5,144,145 3 8
1910	786,209·41	46,054·82	28,945·68	52,068·70	6,056·08	...	268·26	**1,488,454 61**	**5.163.100 17 11**	2,251·71	1,670 11 7	1,490,706 32	5,164,771 9 6
1911	848,725·06	41,861·54	18,190·20	59,831·49	5,242·16	...	159·90	**1,496,846·52**	**5,143,795 10 5**	452·22	915 19 4	1,497,298·74	5,144,711 9 9
1912	876,900·05	51,732·78	33,429·29	52,220·76	4,026·32	...	174·26	**1,471,253·12**	**5,106,466 9 1**	641·47	1,527 8 0	1,471,894·59	5,107,993 17 1
1913	867,887·30	42,738·63	76,581·73	47,535·02	4,221·40	...	277·70	**1,490,235·42**	**5,204,738 18 3**	697·50	1,247 12 7	1.490,932·92	5,205.986 10 10
1914	824,280·77	26,696·51	99,410·57	47,487·27	480·65	...	350·48	**1,450,768 61**	**5,016,905 19 0**	915·24	1,726 5 1	1,451,683·85	5,018,632 4 1
1915	872,406·66	21,593·44	111,539·75	42,283·16	324·48	...	392·28	**1,480.026·72**	**5,060,196 7 6**	1,260·07	2,610 8 11	1,481,286·79	5,062,806 16 5
1916	780,354·90	15,238·33	104,136·12	36,653·26	221·89	...	437·33	**1,280,558·71**	**4,405,278 13 10**	1,059·26	2,060 6 9	1,281,617·97	4,407,339 0 7
Total ...	**12,087,780·62**	**966,326·69**	**765,258·86**	**688,265·83**	**48,538·83**	**630·96**	**19,390·70**	**23,571,339·13**	**82,632,373 9 1**	11,841·34	22,917 18 2	23,583.180·47	82.655,291 7 3

* Prior to 1902 included in State generally.

† Abolished 4th March, 1908.

PART II.—MINERALS OTHER THAN GOLD.

TABLE IX.

GENERAL RETURN OF ORE AND MINERALS, OTHER THAN GOLD, SHOWING THE QUANTITY PRODUCED AND THE VA THEREOF, AS REPORTED TO THE MINES DEPARTMENT FROM THE RESPECTIVE GOLDFIELDS AND MINERAL FIE DURING 1916, AND PREVIOUS YEARS.

BLACK TIN.

Period.	Pilbara Goldfield—Marble Bar District.				Greenbushes Mineral Field.				Total.			
	Quantity.			Value.	Quantity.			Value.	Quantity.			Val
	Lode.	Stream.	Total.		Lode.	Stream.	Total.		Lode.	Stream.	Total.	
	tons.	tons.	tons.	£	tons.	tons.	tons.	£	tons.	tons.	tons.	
Previous to 1899	...	75·45	75·45	4,419	...	1,590·33	1,590·33	66,108	...	1,665·78	1,665·78	70
1899	...	57·50	57·50	3,612	...	277·32	277·32	21,658	...	334·82	334·82	25
1900	...	387·87	387·87	27,174	...	435·62	435·62	29,528	...	823·49	823·49	56
1901	...	412·98	412·98	21,148	...	321·34	321·34	18,852	...	734·32	734·32	40
1902	...	216·35	216·35	15,103	...	403·21	403·21	24,680	...	619·56	619·56	39
1903	...	292·11	292·11	21,528	...	524·94	524·94	34,362	...	817·05	817·05	55
1904	...	320·86	320·86	24,355	...	533·64	533·64	34,462	...	854·50	854·50	58
1905	...	435·74	435·74	33,880	...	643·52	643·52	52,960	...	1,079·26	1,079·26	86
1906	36·59	675·06	711·65	78,449	26·18	757·10	783·28	79,195	62·77	1,432·16	1,494·93	157,
1907	104·13	749·56	853·69	85,603	40·40	729·60	770·00	73,045	144·53	1,479·16	1,623·69	158,
1908	31·00	372·03	403·03	30,636	13·90	562·43	576·33	41,046	44·90	934·46	979·36	71,
1909	81·75	212·21	293·96	22,431	44·40	414·35	458·75	34,786	126·15	*628·08	*754·23	†57,
1910	33·75	119·75	153·50	12,899	25·06	292·65	317·71	27,974	58·81	412·40	471·21	40,
1911	27·35	121·30	148·65	16,064	27·82	383·30	411·12	44,638	55·17	504·60	559·77	60,
1912	10·25	113·13	123·38	14,993	14·90	415·55	430·45	50,166	25·15	528·68	553·83	65,
1913	14·15	124·95	139·10	16,506	29·06	429·42	458·48	50,954	43·21	‡557·72	‡600·93	§67,
1914	12·35	75·05	87·40	8,168	5·32	239·22	244·54	21,145	17·67	314·27	331·94	29,
1915	5·05	73·60	78·65	7,633	7·55	239·78	247·33	21,431	12·60	313·38	325·98	29,
1916	6·50	146·67	153·17	15,939	9·94	271·80	281·74	27,319	16·44	418·47	434·91	43,
Total ...	362·87	4,982·17	5,345·04	460,540	244·53	9,465·12	9,709·65	754,309	607·40	14,452·16	15,059·56	1,215

* Includes tons 1·52, the produce of Cue District. † Includes £118, value of tons 1·52, the produce of Cue District. ‡ Includes tons 3·20 the produce of Cue District and tons ·15 of Coolgardie District. § Includes £242, value of tons 3·20 the produce of Cue District and £15, value of ·15 tons of Coolgardie District.

TANTALITE.

Period.	Pilbara Goldfield—Marble Bar D.				Greenbushes Mineral Field.				Total.			
	Quantity.			Value.	Quantity.			Value.	Quantity.			Value.
	Lode.	Stream.	Total.		Lode.	Stream.	Total.		Lode.	Stream.	Total.	
	tons.	tons.	tons.	£	tons.	tons.	tons.	£	tons.	tons.	tons.	£
Previous to 1899	...	...	...	...	...	...	...	...	...	...	...	...
1899	...	...	...	...	...	...	...	...	...	...	...	...
1900	...	...	...	...	...	...	...	...	...	...	...	...
1901	...	...	...	...	...	...	...	...	...	...	...	...
1902	...	...	...	...	...	...	...	...	..	...	...	...
1903	...	...	...	...	...	...	...	...	...	...	...	...
1904	...	...	...	...	...	...	...	...	...	...	...	...
1905	..	70·95	70·95	8,925	...	2·34	2·34	1,590	...	73·29	73·29	10,515
1906	1·80	12·85	14·65	2,644	...	...	...	...	1·80	12·85	14·65	2,644
1907	...	...	...	...	...	...	...	...	...	...	...	...
1908	...	...	...	...	...	...	...	...	...	...	...	...
1909	·45	...	·45	113	...	·85	·85	214	·45	·85	1·30	327
1910	...	...	...	...	...	...	...	...	...	...	...	...
1911	...	...	...	...	...	...	...	...	...	...	...	...
1912	...	...	...	...	...	...	...	...	...	...	...	...
1913	...	...	...	...	...	...	...	...	...	...	...	...
1914	...	...	...	...	...	...	...	...	...	...	...	...
1915	...	...	...	...	...	...	...	...	...	...	...	...
1916	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	2·25	83·80	86·05	11,682	...	3·19	3·19	1,804	2·25	86·99	89·24	13,486

PYRITIC ORE. / COPPER ORE.

Period.	Pyritic Ore. Mt. Morgans D.		Copper Ore. Pilbara Gf. Marble Bar D.		Pilbara Gf. Nullagine D.		West Pilbara Gf.		Ashburton Gf.		Peak Hill Gf.		E. Murchison Gf. Lawlers D.	
	Quantity.	Value.	Quantity.	Value.	Qu'ntity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£
Previous to 1899 ...	...	...	...	...	...	...	7,018·00	55,270	...	...	...	...	...	...
1899 ...	...	...	...	...	...	...	2,555·00	29,478	...	...	...	...	...	...
1900 ...	...	...	...	...	...	...	1,605·00	12,139	...	...	...	...	...	...
1901 ...	...	...	...	...	...	...	1,162·00	15,891	...	...	...	...	...	...
1902 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1903 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1904 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1905 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1906 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1907 ...	...	...	7·77	190	...	...	3,365·50	63,548	...	...	...	...	...	...
1908 ...	...	...	...	...	...	...	1,486·00	17,691	188·00	2,311	...	...	6·77	69
1909 ...	...	...	...	...	...	...	7,135·50	62,447	10·75	259	...	...	...	...
1910 ...	...	...	...	...	...	...	8,479·80	64,861	...	...	...	...	...	...
1911 ...	9,938·92	3,529	25·10	196	5·00	120	9,082·02	69,140	..	...	...	...	...	...
1912 ...	7,625·80	2,543	...	..	...	...	12,284·02	104,289	...	...	...	...	...	...
1913 ...	10,216·18	3,658	...	...	...	...	12,621·73	76,878	...	...	...	...	...	...
1914 ...	9,758·83	3,485	...	...	...	...	7,764·18	40,607	...	...	112·70	2,409	..	...
1915 ...	6,557·62	2,368	...	...	...	...	314·75	3,546	146·00	3,744	237·58	7,618	10·93	147
1916 ...	4,409·22	2,263	...	...	...	...	48·87	16,116	2·61	27	250·93	8,268	63·42	1,311
Total ...	48,506·57	17,846	32·87	386	5·00	120	75,822·37	631,901	347·36	6,341	601·21	18,295	81·12	1,527

‖Represents the value of the sulphur only, the copper contents not having been treated yet.

TABLE IX.—*Minerals other than Gold, etc.*—continued.

COPPER ORE—*continued.*

Period.	Murchison Gf.				Yalgoo Gf.		Northampton Mf.		Yandanooka Mf.		Mt. Margaret Goldfield.			
	Meekatharra D.		Day Dawn D.								Mt. Morgans District.		Mt. Margaret District.	
	Quantity.	Value.	Quantity.	Value.	Qu'ntity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£
Previous to 1899	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1899 ...	...	...	...	...	...	...	98·00	1,715	38·00	407	273·00	4,338	...	...
1900 ...	...	...	5·15	91	...	...	...	...	...	...	4,539·00	30,718	...	...
1901 ...	...	...	10·50	76	...	...	38·50	277	...	...	7,660·00	40,738	...	...
1902 ...	...	...	...	...	...	...	...	...	...	...	1,954·00	6,852	...	...
1903 ...	...	...	...	...	...	...	...	...	...	...	18,965·00	45,557	...	...
1904 ...	...	...	...	...	...	...	...	...	...	...	500·00	900	...	..
1905 ...	...	...	...	...	...	...	...	...	...	...	60·00	674	...	...
1906 ...	133·50	2,816	...	...	13·91	91	...	...	...	...	4,361·05	21,934	...	...
1907 ...	...	...	31·71	274	10·00	130	...	...	...	...	5,141·52	58,888	2·85	26
1908 ...	...	...	...	...	9·50	97	...	...	133·55	1,482	4,404·10	20,221	...	...
1909 ...	608·00	2,823	...	...	...	...	...	...	...	...	...	...	...	...
1910 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1911 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1912 ...	...	...	4·80	54	...	...	...	...	...	...	...	...	...	...
1913 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1914 ...	15·19	248	3·40	27	...	...	...	...	...	...	...	...	...	...
1915 ...	33·70	492	...	...	4·99	95	...	...	...	...	...	...	...	...
1916 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	790·39	6,379	55·56	522	38·40	413	136·50	1,992	171·55	1.889	47,857·67	230.820	2·85	26

COPPER ORE—*continued.*

Period.	North Coolgardie Goldfield.		East Coolgardie Goldfield.		Phillips River Goldfield.		State generally.		Total.	
	Menzies District.		E. Coolgardie D.							
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£
Previous to 1899	...	...	...	...	...	...	...	...	7,018·00	55,270
1899	...	...	...	...	...	...	...	...	2,964·00	35,938
1900	...	...	...	...	34·00	725	...	...	6,183·15	43,673
1901	...	...	...	...	1,089·14	12,918	...	...	9,960·14	69,900
1902	...	...	...	...	308·25	1,238	...	...	2,262·25	8,090
1903	...	...	...	...	1,561·33	10,984	...	...	20,526·33	56,541
1904	...	...	...	...	3,468·89	24,280	...	...	3,968·89	25,180
1905	...	...	...	...	2,329·04	15,592	...	...	2.389·04	16,266
1906	4·70	33	...	...	2,885·00	25,270	13·50	193	7,411·66	50,337
1907	1·42	18	...	...	10,414·57	57,273	3·08	40	18,978·42	180,387
1908	...	...	50·67	330	2,015·71	9,233	...	...	8,294·30	51,434
1909	...	...	...	...	7,330·70	29,815	...	...	15,084·95	95,344
1910	...	...	...	...	25,871·65	96,745	...	...	34,351·45	161,606
1911	...	...	...	...	13,563·68	46,862	...	...	22,675·80	116,318
1912	...	...	...	...	1,318·38	15,815	...	...	13,607·20	120,158
1913	...	...	...	...	806·95	9,737	..	...	13,428·68	86,615
1914	...	...	...	...	4,841·15	37,524	38·50	426	12,775 12	81,241
1915	...	...	...	...	3,681·03	24,093	69·58	1,263	4,498·56	40,998
1916	...	...	...	...	5,428·08	48,618	3·47	36	6,697·38	74,376
Total	6·12	51	50·67	330	86,947·55	466,72	128·13	1,958	213,075·32	1,369,672

Period.	Ironstone.								Lead ore.					
	W. Pilbara Gf.		E. Coolgardie Gf. E. Coolgardie D.		State generally.		Total.		Northampton Mf.		West Pilbarra Gf.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£
Previous to 1899	100·00	300	...	...	...	...	100·00	300	...	...	...	...	...	...
1899 ...	...	...	...	...	12,852·00	8,939	12,852·00	8,939	82·75	912	...	...	82·75	912
1900 ...	...	...	...	...	12,251·00	9,258	12,251·00	9,258	268·00	533	...	...	268·00	533
1901 ...	...	...	450·00	247	20,119·00	12,999	20,569·00	13,246	...	...	...	...	...	...
1902 ...	...	...	...	...	4,800·00	2,040	4,800·00	2,040	...	...	...	...	...	...
1903 ...	...	...	...	...	220·00	88	220·00	88	...	...	...	...	...	...
1904 ...	...	...	...	...	1,441·50	577	1,441·50	577	...	...	...	...	...	...
1905 ...	...	...	...	...	3,212·60	1,285	3,212·60	1,285	...	...	...	...	...	...
1906 ...	...	...	...	...	1,279·87	512	1,279·87	512	...	...	...	...	...	...
1907 ...	...	...	...	...	1,093·53	438	1,093·53	438	10·00	128	...	...	10·00	128
1908 ...	...	...	...	...	...	...	...	...	57·00	461	...	...	57·90	461
1909 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1910 ...	...	...	...	...	† 10·50	† 12	10·50	12	185·10	1,777	...	...	185·10	1,777
1911 ...	...	...	...	...	...	...	...	...	8,194·76	17,663	...	...	8,194·76	17,663
1912 ...	...	...	...	...	...	...	...	...	11,098·50	24,412	...	...	11,098·50	24,412
1913 ...	...	...	...	...	...	...	...	...	26,589·53	50,474	...	...	26,589·53	50,474
1914 ...	...	...	...	...	...	...	...	...	15,334·62	38,351	...	...	15,344·62	38,351
1915 ...	...	...	...	...	...	...	...	...	15,678·30	29,396	...	...	15,678 30	29,396
1916 ...	...	...	...	...	...	...	...	...	34,578·34	110,372	44·00	770	34,622·34	111,642
Total	100·00	300	450·00	247	57,280·00	36,148	57,830·00	36.695	112,076·90	274, 79	44·00	770	112.120·90	275,749

† Iron ore from Koolan Island, Yampi Sound,

TABLE IX.—*Minerals other than Gold, etc.*—continued.

Period.	SILVER LEAD ORE.		COAL.		WOLFRAM ORE.		GODOLINITE.		ASBESTOS.	
	ASHBURTON GF.		COLLIE RIVER COAL MF.		STATE GENERALLY.		PILBARA GF.		PILBARA GF.	
							Marble Bar D.		Marble Bar D.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£
Previous to 1899	...	...	3,508·00	1,761	...	...	...	...	...	...
1899	...	...	54,336·00	25,951	...	...	...	...	...	...
1900	...	...	118,410·10	54,835	...	...	...	...	...	...
1901	21·05	152	117,835·80	68,561	...	...	...	...	...	...
1902	35·85	277	140,883·90	86,188	...	...	...	...	...	...
1903	...	...	133,426·62	69,128	...	...	...	...	...	...
1904	...	...	138,550·04	67,174	...	...	...	...	...	...
1905	...	...	127,364·06	55,312	...	...	...	...	...	...
1906	...	...	149,755·27	57,998	...	...	...	...	...	...
1907	...	...	142,372·54	55,158	...	...	...	...	...	...
1908	727·25	6,914	175,247·92	75,694	...	...	...	...	40·00	1,600
1909	440·00	3,520	214,301·98	90,965	*5·00	90	...	...	2·83	154
1910	...	...	262,166·06	113,699	†42 00	115	...	...	...	...
1911	...	...	249,899·15	111,154	‡194·00	877	...	...	...	...
1912	...	...	295,078·91	135,857	...	...	...	...	...	...
1913	125·50	1,757	313,817·96	153,614	‡ 4·64	69	1·00	112	...	...
1914	715·10	9,807	319,210·32	148,684	...	...	...	...	...	...
1915	298·96	4,429	286,666·35	137,859	**·25	27	...	...	...	...
1916	67·83	554	301,525·97	147,823	20·00	117	...	...	...	...
Total	2,431·54	27,410	3,544,356·95	1,657,415	265·89	1,295	1·00	112	42·83	1,754

Period.	LIMESTONE.								DIAMONDS.		MAGNESITE.		ANTIMONY.	
	MURCHISON GF.		YILGARN GOLDFIELD.		STATE GENERALLY.		TOTAL.		PILBARA GF.		EAST COOLGARDIE GOLDFIELD.		WEST PILBARA GOLDFIELD.	
	Cue District.								Nullagine District.		Bulong District.			
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	tons.	£	tons.	£	tons.	£	tons.	£	carats.	£	tons.	£	tons.	£
Previous to 1899	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1899 ...	...	...	...	...	17,593·00	2,838	17,593·00	2,838	§	24	...	...	...	...
1900 ...	...	...	269·85	273	15,657·00	3,321	15,926·85	3,594	...	...	...	...	...	...
1901 ...	...	...	1,642·00	919	16,568·00	3,429	18,210·00	4,348	...	...	...	...	...	...
1902 ...	...	...	535·00	340	4,545·35	1,000	5,080·35	1,340	...	...	...	...	...	...
1903 ...	...	...	102·00	75	1,177·50	103	1,279·50	178	...	...	...	...	...	...
1904 ...	...	...	...	...	13,397·20	1,699	13,397·20	1,699	...	...	...	...	...	...
1905 ...	...	...	...	...	9,144·60	1,220	9,144·60	1,220	...	...	...	...	...	...
1906 ...	...	...	...	...	9,472·28	1,691	9,472·28	1,691	...	...	...	...	...	...
1907 ...	298·00	772	...	...	3,303·95	610	3,601·95	1,382	...	...	...	...	...	...
1908 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1909 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1910 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1911 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1912 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1913 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1914 ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1915 ...	...	...	...	...	...	...	...	...	...	...	601·50	601	...	...
1916 ...	...	...	...	...	...	...	...	...	...	...	97·50	97	20·78	491
Total ..	298·00	772	2,548·85	1,607	90,858·88	15,911	93,705·73	18,290	...	24	699·00	698	20·78	491

* Produced within the West Kimberley Magisterial District. † Tons 22·00, value £30, the produce of West Kimberley and tons 20·00, value £85, the produce of Cue. ‡ The produce of Cue District. § Weight unknown. ** The produce of Yalgoo Goldfield.

NOTE.—As the collection of Statistics of Minerals other than Gold commenced during 1899, the total production from the different localities can only be approximately estimated by the Customs Records, the latest available returns of which are to be found in Table XXV., pages 92-95.

TABLE X.

QUANTITY AND VALUE OF BLACK TIN REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.				TOTALS TO DATE.			
			Quantity.			Value.	Quantity.			Value.
			Lode.	Stream.	Total.		Lode.	Stream.	Total.	
			tons.	tons.	tons.	£	tons.	tons.	tons.	£
PILBARA GOLDFIELD.										
MARBLE BAR DISTRICT.										
Cooglegong ..	..	Sundry claims	..	28·20	28·20	3,112	..	1,608·27	1,608·27	134,835
Mill's Find ..	..	Sundry claims	..	..	..	..	..	·85	·85	69
Moolyella ..	..	Voided leases	..	..	..	..	..	330·53	330·53	21,340
Do. ..	..	Sundry claims	..	33·70	33·70	3,656	..	2,668·51	2,668·51	242,147
Old Shaw ..	..	Voided leases	..	..	..	..	..	6·75	6·75	424
Do. ..	..	Sundry claims	..	..	..	..	..	214·04	214·04	14,525
Tabba Tabba	..	Sundry claims	..	84·77	84·77	8,441	..	84·77	84·77	8,441
Wodgina ..	84 ..	(Mount Cassiterite).. ..	..	..	..	..	133·52	13·85	147·37	14,184
Do. ..	84 (93), (148)	Mount Cassiterite leases ..	6·50	..	6·50	730	185·75	1·60	187·35	15,380
Do. ..	..	Voided leases	..	..	..	..	37·82	6·10	43·92	4,414
Do. ..	..	Sundry claims	..	..	..	..	5·78	46·90	52·68	4,781
		Totals	**6·50**	**146·67**	**153·17**	**15,939**	**362·87**	**4,982·17**	**5,345·04**	**460,540**
MURCHISON GOLDFIELD.										
CUE DISTRICT.										
Poona ..	..	Sundry claims	..	..	..	..	..	1·52	1·52	118
Cuddingwarra	..	Sundry claims	..	..	..	..	..	3·20	3·20	242
		Totals	..	..	..	..	..	**4·72**	**4·72**	**360**
COOLGARDIE GOLDFIELD.										
COOLGARDIE DISTRICT.										
Bulla Bulling	...	Sundry Claims	...	...	...	...	...	·15	·15	15
		Totals	...	...	...	...	...	**·15**	**·15**	**15**
GREENBUSHES MINERAL FIELD.										
Greenbushes..	472	(Aqua)	..	..	..	..	..	1·50	1·50	128
Do. ..	296	(Central)	..	..	..	..	..	100·16	100·16	9,728
Do. ..	511	Champion	..	14·85	14·85	1,136	..	104·35	104·35	9,516
Do. ..	(356), (514)	Cornwall leases	..	..	..	..	56·72	13·63	70·35	6,278
Do. ..	369	Enterprise	..	1·58	1·58	140	·20	7·04	7·24	623
Do. ..	577	Ethel May	..	7·23	7·23	733	..	7·23	7·23	733
Do. ..	472, 497, 510	Excelsior leases	..	..	..	..	..	20·60	20·60	2,438
Do. ..	510	(Excelsior Extended) ..	..	..	..	..	..	·05	·05	5
Do. ..	497	(Excelsior Tin Mining Co., Ltd.)	..	..	..	..	..	4·05	4·05	281
Do. ..	35, (169), 218, (272), 287, (295), 296, (331), (375), (395), (421), (425), (428), (432), (448), (453)	Greenbushes Development Co., Ltd.	..	44·23	44·23	4,567	·35	936·04	936·39	81,524
Do. ..	35	(Horan's)	..	..	..	..	..	188·35	188·35	11,605
Do. ..	515	Kapanga	·33	..	·33	31	16·22	·76	16·98	1,781
Do. ..	73, 233, 271	King Tin leases	..	·20	·20	20	5·31	50·88	56·19	5,548
Do. ..	271	(King Tin North)	..	..	..	..	..	1·84	1·84	117
Do. ..	(552) ..	Last Chance	..	..	..	..	1·55	7·32	8·87	831
Do. ..	(470) ..	Little Wonder	..	..	..	..	5·00	49·73	54·73	5,455
Do. ..	578	Morning Star	..	1·55	1·55	147	..	1·55	1·55	147
Do. ..	73	(Nelson)	..	..	..	..	..	22·40	22·40	1,675
Do. ..	73, 233 ..	(Nelson leases)	..	..	..	..	..	61·01	61·01	4,164
Do. ..	(413), (423), (424), (425), (470), (471)	(Nickel Kramer Tin Mining Co., Ltd.)	..	..	..	..	..	9·17	9·17	726
Do. ..	504	Old Bunbury	..	..	..	..	..	35·05	35·05	3,129
Do. ..	529, 555, 571	Phœnix Sluicing Co., Ltd. ..	..	48·54	48·54	4,512	..	48·54	48·54	4,512
Do. ..	498	Rat	..	..	..	..	..	·74	·74	84
Do. ..	505, 519 ..	Scotia leases	..	3·08	3·08	263	..	40·15	40·15	3,490
Do. ..	450, 458, 485, 486, 487, 488, 489	Stanhope United leases ..	..	56·25	56·25	5,401	..	435·23	435·23	46,434

TABLE X.—*Quantity and Value of BLACK TIN, etc.*—continued.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.				TOTALS TO DATE.			
			Quantity.			Value.	Quantity.			Valu
			Lode.	Stream.	Total.		Lode.	Stream.	Total.	
			tons.	tons.	tons.	£	tons.	tons.	tons.	£
GREENBUSHES MINERAL FIELD—*continued.*										
Greenbushes	(569) ..	Substitute	..	..	..	..	..	8·50	8·50	
Do. ..	529	(Three C's)	..	..	..	..	..	53·33	53·33	4,
Do. ..	565	Turn of the Tide	..	..	..	..	..	3·09	3·09	
Do. ..	218	(W.A. Mount Bischoff) ..	..	..	..	..	..	5·38	5·38	
Do. ..	(381), (435), (436), 472, (478)	(Westralian Gully Tin Co., Ltd.)	..	..	..	..	6·38	34·38	40·76	3,
Do. ..	35, (169), (195), 218, (221), (228), (272), 287, (293), 295, (299), (310), (375)	(Westralian Stanneries, Ltd.)..	..	..	..	..	..	109·33	109·33	8,
Do. ..	Loc. 289, 290	Freehold Ground (Clarth and others)	..	..	..	..	..	318·04	318·04	28,
Do. ..	.. ..	Voided leases	..	..	..	..	118·66	645·30	763·96	68,
Do. ..	.. ..	Sundry claims	9·61	94·29	103·90	10,369	34·14	6,140·40	6,174·54	438,
		Totals	**9·94**	**271·80**	**281·74**	**27,319**	**244·53**	**9,465·12**	**9,709·65**	**754,**

TABLE XI.

QUANTITY AND VALUE OF TANTALITE REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.				TOTAL TO DATE.			
			Quantity.			Value.	Quantity.			Value.
			Lode.	Stream.	Total.		Lode.	Stream.	Total.	
			tons.	tons.	tons.	£	tons.	tons.	tons.	£
PILBARA GOLDFIELD.										
MARBLE BAR DISTRICT.										
Wodgina ...	86, 87, 95	H.M. and Anchorite leases	...	...	...	...	2·25	32·30	34·55	5,558
Do. ...	...	Sundry claims ...	...	...	...	...	...	51·50	51·50	6,124
		Totals	...	...	...	...	**2·25**	**83·80**	**86·05**	**11,682**
GREENBUSHES MINERAL FIELD.										
Greenbushes	369 ...	Enterprise	...	...	...	...	...	3·19	3·19	1,804
		Totals	...	...	...	...	...	**3·19**	**3·19**	**1,804**

TABLE XII.

QUANTITY AND VALUE OF PYRITIC ORE REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.		TOTAL TO DATE.	
			Quantity.	†Value.	Quantity.	†Value.
			tons.	£	tons.	£
MT. MARGARET GOLDFIELD.						
MT. MORGANS DISTRICT.						
Eulaminna ...	4F, 5F, 11F, 12F	West Australian Copper Co., Ltd.	2,247·15	1,138	40,056·11	14,277
Murrin Murrin ...	18F ...	Nangeroo: Nangaroo Mines, Ltd.	2,162·07	1,125	8,450·46	3,569
		Totals	**4,409·22**	**2,263**	**48,506·57**	**17,846**

† Represents the value of the sulphur only, the copper contents not having been treated yet.

TABLE XIII.

QUANTITY AND VALUE OF COPPER ORE REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916			TOTALS TO DATE.		
			Quantity.		Value.	Quantity.		Value.
			Ore.	Metallic Copper.		Ore.	Metallic Copper.	
			tons.	tons.	£	tons.	tons.	£
PILBARA GOLDFIELD.								
MARBLE BAR DISTRICT.								
Marble Bar ...	...	Voided leases	...	...	...	11·00	1·64	90
Do. ...	...	Sundry claims	...	...	...	4·75	·48	25
North Pole ...	...	Voided leases	...	...	...	9·35	1·39	81
North Shore ...	...	Voided leases	...	...	...	7·77	1·90	190
		Totals	...	...	...	**32·87**	**5·41**	**386**
NULLAGINE DISTRICT.								
McPhee's Creek	...	Voided leases	...	...	...	5·00	2·22	120
		Totals	...	...	...	**5·00**	**2·22**	**120**
WEST PILBARA GOLDFIELD.								
Croydon ..	..	Voided leases	..	..	..	604·00	108·65	7,333
Egina	..	Voided leases	..	..	..	542·00	104·15	6,643
Roebourne ..	M.L. 183..	Carlow Castle: Roebourne Copper Mines, Ltd.	69·00	7·80	780	69·00	7·80	780
Do. ..	M.Ls. 174, 175	Good Fortune leases	46·35	7·38	718	46·35	7·38	718
Do. ...	M.L. 178..	Lily Blanche	13·25	2·40	226	16·98	2·97	272
Do. ..	M.L. 167..	Quod Est	..	..	..	22·43	3·49	256
Do. ..	M.L. 179, 180	Whundo leases	248·00	55·17	5,353	268·00	59·17	5,633
Do. ..	M.L. 144..	Yannery Hill	81·00	21·54	1,852	217·65	58·74	4,454
Do. ..	..	Voided leases	..	..	..	2,000·10	371·93	29,621
Do. ..	..	Sundry claims	21·37	2·69	163	77·41	13·61	800
Whim Creek ..	M.L. 34 ..	(Balla Balla Copper Mines, Ltd.) ..	..	..	..	2,009·00	166·33	12,036
Do. ..	M.L. 34 ..	Mons Cupri: Whim Well Copper Mines, Ltd.	68·00	6·80	680	145·00	18·90	1,454
Do. ..	Loc. 71 ..	Whim Well Copper Mines, Ltd. ..	401·90	62·91	6,344	69,774·45	8,893·71	561,651
		Voided leases	..	..	..	30·00	5·50	250
		Totals	**948·87**	**166·69**	**16,116**	**75,822·37**	**9,822·33**	**631,901**
ASHBURTON GOLDFIELD.								
Ashburton ..	..	Sundry claims	2·61	·27	27	2·61	·27	27
Red Hill ..	..	Voided leases	..	..	..	175·50	33·85	2,126
Uaroo	M.L. 88 ..	Victoria	..	..	..	146·00	55·24	3,744
Do. ..	..	Voided leases	..	..	..	23·25	7·25	444
		Totals	**2·61**	**·27**	**27**	**347·36**	**96·61**	**6,341**
PEAK HILL GOLDFIELD.								
Peak Hill ..	M.L. (36P)	Bulla Downs	56·68	14·93	1,545	78·61	20·42	1,977
Do. ..	M.L. 41P..	Butcher Bird	7·96	2·58	330	7·96	2·58	330
Do. ..	M.L. 32P ..	Resurgam	..	..	..	25·88	8·94	587
Do. ..	M.L. 9P ..	Sons of Gwalia	136·92	36·31	4,191	323·23	119·27	10,204
Do. ..	M.Ls. 10P, 11P	Sons of Gwalia South leases ..	..	..	..	2·87	1·04	63
Do. ..	M.Ls. (29P), (30P), 31P	(Two Sisters leases)	..	..	..	64·04	30·93	1,466
Do. ..	M.L. 31P..	Two Sisters North	30·14	14·87	1,656	30·14	14·87	1,656
Do. ..	..	Voided leases	..	..	..	7·75	3·48	223
Do. ..	..	Sundry claims	19·23	4·62	546	60·73	21·43	1,784
		Totals	**250·93**	**73·31**	**8,268**	**601·21**	**222·96**	**18,295**
EAST MURCHISON GOLDFIELD.								
LAWLERS DISTRICT.								
Kathleen Valley	..	Voided leases	..	..	..	6·77	1·32	69
Lawlers ..	..	Sundry claims	63·42	11·22	1,311	74·35	13·25	1,458
		Totals	**63·42**	**11·22**	**1,311**	**81·12**	**14·57**	**1,527**

TABLE XIII.—*Quantity and Value of COPPER ORE, etc.*—continued.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916. Quantity. Ore.	1916. Quantity. Metallic Copper.	1916. Value.	TOTALS TO DATE. Quantity. Ore.	TOTALS TO DATE. Quantity. Metallic Copper.	TOTALS TO DATE. Value.
			tons.	tons.	£	tons.	tons.	£
MURCHISON GOLDFIELD.								
MEEKATHARRA DISTRICT.								
Gabanintha ..	G.M.L. 1175N	Unexpected	..	..	..	42·22	8·32	606
Do. ..	..	Voided leases	..	..	..	741·50	83·60	5,639
Do. ..	..	Sundry claims	..	..	..	6·67	2·06	134
		Totals	..	..	..	**790·39**	**93·98**	**6,379**
DAY DAWN DISTRICT.								
Day Dawn ..	..	Voided leases	..	..	..	26·95	5·17	305
Do. ..	..	Sundry claims	..	..	..	28·61	2·93	217
		Totals	..	..	..	**55·56**	**8·10**	**522**
YALGOO GOLDFIELD.								
Mount Gibson ..	..	Sundry Claims	..	..	..	4·99	1·10	95
Twin Peaks ..	..	Sundry Claims	..	..	..	19·50	3·49	227
Wadgingarra ..	..	Voided leases	..	..	..	13·91	·98	91
		Totals	..	..	..	**38·40**	**5·57**	**413**
NORTHAMPTON MINERAL FIELD.								
Geraldine ...	...	Voided leases	...	...	...	136·50	36·05	1,992
		Totals	...	...	...	**136·50**	**36·05**	**1,992**
YANDANOOKA MINERAL FIELD.								
Arrino ...	...	Sundry claims	...	...	...	126·05	18·48	1,386
Yandanooka ...	Freehold Gd.	Muggawa Copper Mine... ...	...	...	...	7·50	1·20	96
Do. ...	...	Voided leases	...	...	...	38·00	7·95	407
		Totals	...	...	...	**171·55**	**27·63**	**1,889**
MOUNT MARGARET GOLDFIELD.								
MOUNT MORGANS DISTRICT.								
Eulaminna ...	[10c, 11c], (12c, 37c),	(Mt. Malcolm Copper Mine) ...	...	...	...	13,516·00	1,001·98	70,754
Do. ...	[10c, 11c,] 4F, 5F	(Mt. Malcolm Copper Mine) ...	...	...	...	3,839·00	418·00	17,065
Do. ...	[10c, 11c], (12c, 37c),	(Murrin Copper Mines, Ltd.) ...	...	...	...	19,165·00	798·50	45,817
Do. ...	4F, 5F, 11F, 12F	West Australian Copper Co., Ltd. ...	...	...	...	9,794·05	1,976·08	80,199
Mt. Margaret ...	...	Voided leases	...	...	...	11·53	2·40	163
Murrin Murrin	18F ...	Nangeroo: Nangaroo Mines, Ltd....	...	...	...	6·80	3·00	160
Do. ...	...	Voided leases	...	...	...	1,525·29	248·04	16,662
		Totals	...	...	...	**47,857·67**	**4,448·00**	**230,820**
MOUNT MARGARET DISTRICT.								
Burtville ...	...	Voided leases	...	...	...	2·85	·29	26
		Totals	..	...	...	**2·85**	**·29**	**26**
NORTH COOLGARDIE GOLDFIELD.								
MENZIES DISTRICT.								
Goongarrie ...	...	Voided leases	...	...	...	4·70	·42	33
Do. ...	...	Sundry claims	...	...	...	1·42	·40	18
		Totals	...	...	...	**6·12**	**·82**	**51**
EAST COOLGARDIE GOLDFIELD.								
EAST COOLGARDIE DISTRICT.								
Boorara ...	...	Voided leases	...	...	...	50·67	6·22	330
		Totals	...	...	...	**50·67**	**6·22**	**330**

TABLE XIII.—*Quantity and Value of COPPER ORE, etc.*—continued.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.			TOTALS TO DATE.		
			Quantity.		Value.	Quantity.		Value.
			Ore.	Metallic Copper.		Ore.	Metallic Copper.	
			tons.	tons.	£	tons.	tons.	£
PHILLIPS RIVER GOLDFIELD.								
Kundip ..	G.M.Ls. 147, 179	Fair Play leases	..	38·60	3,860	130·09	80·73	6,415
Do. ..	G.M.Ls. 136, 137, 138, (139)	(Flag Gold and Copper Mining Co., Ltd.)	..	..	..	2,107·84	144·75	8,494
Do. ..	G.M.Ls. 136, 137, 138	Flag leases	33·18	7·23	723	33·18	19·17	1,398
Do. ..	G.M.L. 184	Gem	..	3·60	360	..	3·60	360
Do. ..	G.M.Ls. 151, 156	Gem Consolidated leases.. ..	..	16·39	1,613	48·00	21·72	1,954
Do. ..	M.Ls. 52, 94	Harbour View Gold and Copper Co., Ltd.	490·34	39·11	3,948	879·95	70·40	5,828
Do. ..	M.Ls. 52, 94	(Harbour View leases) : ..	..	..	..	604·36	76·80	4,524
Do. ..	M.Ls. 52, 94	(Harbour View Leases)	..	..	..	508·27	64·66	3,642
Do. ..	G.M.L. 98	Hillsborough	..	7·76	776	692·84	35·84	2,592
Do. ..	M.Ls. 52, 94	(Ravensthorpe G.M. Syndicate, N.L.)	..	..	..	132·56	24·36	1,382
Do. ..	G.M.L. 74	Two Boys	..	3·68	368	..	3·68	368
Do. ..	..	Voided leases	..	..	..	964·05	106·62	6,893
Do. ..	..	Sundry claims	..	·17	17	72·39	10·69	758
Mt. Desmond ..	M.L. 203..	British Flag: Phillips River Gold and Copper Co., Ltd.	..	..	..	19·90	3·64	250
Do. ..	M.L. 208..	Desmond	408·13	39·77	4,024	610·18	68·98	5,675
Do. ..	M.L. 208..	(Desmond: Phillips River Gold and Copper Co., Ltd.)	..	..	..	1,234·05	215·74	14,956
Do. ..	M.L. 95 ..	(Elverdton)	..	..	..	130·00	5·70	570
Do. ..	M.L. 95 ..	Elverdton	3,533·64	233·33	23,519	4,999·38	376·61	31,613
Do. ..	M.L. 95 ..	(Elverdton: Phillips River Gold and Copper Co., Ltd.)	..	..	..	30,574·23	2,186·64	124,252
Do. ..	M.L. 95 ..	(Elverdton: Phillips River Options Syndicate, N.L.)	..	..	..	2,946·02	401·43	22,657
Do. ..	M.L. 168..	(Elverton South)	..	..	..	18·48	2·39	119
Do. ..	M.L. 168..	Elverton South: Phillips River Gold and Copper Co., Ltd.	..	..	..	15·73	1·46	92
Do. ..	M.L. 109..	(Mt. Desmond)	..	..	..	198·87	30·77	1,640
Do. ..	M.L. 109	Mt. Desmond: Phillips River Gold and Copper Co., Ltd.	..	..	..	1,762·22	216·76	18,128
Do. ..	M.L. 199..	(P.L.P.)	..	..	..	208·66	33·69	2,277
Do. ..	M.L. 199..	P.L.P.: Phillips River Gold and Copper Co., Ltd.	..	..	..	17·56	1·88	121
Do. ..	..	Voided leases	..	..	..	1,015·17	166·71	9,770
Do. ..	..	Sundry claims	11·39	·89	89	98·44	18·48	1,231
Ravensthorpe ..	M.L. 361..	Last Chance	51·06	6·85	685	51·06	6·85	685
Do. ..	M.L. 16 ..	(Marion Martin)	..	..	..	865·69	130·61	6,650
Do. ..	M.L. 16 ..	Marion Martin	301·64	36·97	3,685	774·41	89·46	6,650
Do. ..	M.L. 16 ..	(Marion Martin: Phillips River Gold and Copper Co., Ltd).	..	..	..	2,855·36	375·44	23,506
Do. ..	M.L. 363..	Mount Benson	222·19	10·26	1,026	222·19	10·26	1,026
Do. ..	M.L. (175)	(Mount Benson)	..	..	..	605·19	73·64	3,702
Do. ..	M.L. (175)	Mount Benson	..	..	..	27·95	3·15	177
Do. ..	M.L. (175)	(Mount Benson: Phillips River Gold and Copper Co., Ltd.)	..	..	..	1,164·80	82·43	5,832
Do. ..	M.L. 15 ..	(Mount Cattlin)	..	..	..	281·56	31·35	1,716
Do. ..	M.L. 15 ..	Mount Cattlin	151·10	10·29	1,052	509·74	37·47	2,589
Do. ..	M.L. 15 ..	(Mount Cattlin: Mount Cattlin Copper Mining Co., Ltd.)	..	..	..	6,608·76	333·59	28,841
Do. ..	M.L. 15 ..	(Mount Cattlin: Phillips River Gold and Copper Co., Ltd.)	..	..	..	1,263·76	80·26	7,646
Do. ..	M.L. 15 ..	(Mount Cattlin: Phillips River Gold and Copper Co., Ltd.)	..	..	..	14,432·25	714·90	40,313
Do. ..	M.L. 342..	Surprise	116·78	15·44	1,623	700·97	131·95	8,911
Do. ..	..	Voided leases	..	..	..	4,722·70	637·23	38,311
Do. ..	..	Sundry claims	86·24	10·34	1,039	540·72	52·34	3,506
West River ..	..	Voided leases	..	..	..	44·04	7·41	414
Do. ..	..	Sundry claims	22·39	2·08	211	145·41	24·81	1,939
Do. ..	..	From Glodfield generally	..	..	..	1,108·57	103·28	6,349
		Totals	**5,428·08**	**482·76**	**48,618**	**86,947·55**	**7,320·33**	**466,722**
STATE GENERALLY.								
	M.L. 227H	Holbrook	..	..	..	4·22	·94	64
	M.L. 228H	Obagama	..	..	..	8·97	1·82	136
	M.L. 221H	Yampi Sound Copper Mine ..	..	..	..	92·86	22·80	1,473
	A97H ..	M. McCulloch	..	..	..	2·03	·28	16
		Voided leases	..	..	..	3·08	1·26	40
		Sundry claims	3·47	·36	36	16·97	2·63	229
		Totals	**3·47**	**·36**	**36**	**128·13**	**29·73**	**1,958**

TABLE XIV.

QUANTITY AND VALUE OF IRONSTONE REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.		TOTALS TO DATE.	
			Quantity.	Value.	Quantity.	Value.
			tons.	£	tons.	£
WEST PILBARA GOLDFIELD.						
Whim Creek ...	...	Voided leases	...	...	100·00	300
		Totals	...	...	**100·00**	**300**
EAST COOLGARDIE GOLDFIELD.						
EAST COOLGARDIE DISTRICT.						
Boulder	...	Voided leases	...	...	450·00	247
		Totals	...	...	**450·00**	**247**
STATE GENERALLY.						
Avon			...	...	22,223·00	16,241
Clackline			...	...	18,253·50	8,789
Coates' Paddock			...	...	4,712·00	3,277
Greenbushes			...	...	7,418·00	4,629
Koolan Island—Yampi Sound			...	...	10·50	12
Werribee			...	..	4,600·00	3,200
		Totals	...	...	**57,280·00**	**36,148**

TABLE XV.

QUANTITY AND VALUE OF LEAD ORE REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.			TOTALS TO DATE.		
			Lead Ore.	Metal therefrom.	Value.	Lead Ore.	Metal therefrom.	Value.
			tons.	tons.	£	tons.	tons.	£
NORTHAMPTON MINERAL FIELD.								
Geraldine	..	Voided leases	..	..	..	57.00	41.61	461
Narra Tarra ..	Loc. 833	Narra Tarra: Fremantle Trading Co., Ltd.	17,817.60	1,900.13	59,271	18,561.65	2,440.26	69,589
Do.	..	Sundry claims ..	..	..	..	225.00	27.00	185
Northampton ..	Loc. 1472	Baddera: Fremantle Trading Co., Ltd.	16,418.90	1,494.49	46,713	92,202.16	9,933.97	197,026
Do.	M.Ls. 127, 128, 129	Kirtons leases	117.58	71.14	1,590	667,58	155.64	2,985
Do.	M.L. (12PP)	Kirtons Main Lode ..	15.39	10.02	227	15.39	10.02	227
Do.	M.L. 140	Surprise	.71	.44	9	.71	.44	9
Do.	M.L. 126	Uga	121.03	83.80	1,996	121.03	83.80	1,996
Do.	..	Voided leases	..	..	..	116.75	72.58	1,176
Do.	..	Sundry claims ..	87.13	47.79	1,066	90.63	49.77	1,113
Victoria	..	Voided leases	..	..	..	19.00	12.54	212
		Totals	**34,578.34**	**3,637.81**	**110,872**	**112,076.90**	**12,827.63**	**274,979**
WEST PILBARA GOLDFIELD.								
Whim Creek ..	M.L. 172	Cumstock	44.00	22.00	770	44.00	22.00	770
		Totals	**44.00**	**22.00**	**770**	**44.00**	**22.00**	**770**

TABLE XVI.

QUANTITY AND VALUE OF SILVER-LEAD ORE REPORTED TO THE MINES DEPARTMENT DURING 1916. AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.		TOTALS TO DATE.	
			Quantity.	Value.	Quantity.	Value.
			tons.	£	tons.	£
ASHBURTON GOLDFIELD.						
Ashburton ..	..	Voided leases	..	..	56·90	429
Do.	..	Sundry claims	2·83	40	2·83	40
Uaroo	43, 49, 84	Uaroo Silver Lead Mines, Ltd.	65·00	514	2,371·81	26,941
		Totals	**67·83**	**554**	**2,431·54**	**27,410**

TABLE XVII.

QUANTITY AND VALUE OF COAL REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.		TOTALS TO DATE.	
			Quantity,	Value.	Quantity.	Value.
			tons.	£	tons.	£
		COLLIE RIVER MINERAL FIELD.				
Collie ..	197, etc.	Cardiff Coal Mining Co., Ltd.	67,115·76	28,840	653,648·33	278,396
Do. ..	151, etc.	(Collie Boulder Coal Co., Ltd.)	..	..	71,512·70	26,139
Do. ..	244, etc.	Collie Co-operative Collieries, Ltd.	98,685·25	50,535	718,649·10	347,476
Do. ..	88 (part of)	(Collie Proprietary Coalfields of W.A., Ltd.) (No. 1 Pit)	..	..	477,781·55	242,918
Do. ..	85–100	(Collie Proprietary Coalfields of W.A., Ltd.) (No. 2 Pit)	..	..	580,392·15	289,246
Do. ..	260–6	Premier Coal Mining Co., Ltd.	10,002·23	4,532	89,964·49	41,475
Do. ..	151, etc.	Scottish Co-operative Collieries, Co., Ltd.	140·00	50	430,796·95	171,303
Do. ..	88 (part of)	The Proprietary Coal Mines of W.A., Ltd. (No. 1 Pit) ..	..	..	109·00	54
Do. ..	85–100	The Proprietary Coal Mines of W.A., Ltd (No. 2 Pit) ..	77,173·93	39,153	277,456·82	140,076
Do. ..	250–254 256	Westralian Coal Mining Co., Ltd.	48,408·80	24,713	218,476·01	107,402
Do. ..	..	Voided leases	..	..	25,569·85	12,930
		Totals	**301,525·97**	**147,823**	**3,544,356·95**	**1,657,415**

TABLE XVIII.

QUANTITY AND VALUE OF LIMESTONE REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.		TOTALS TO DATE.	
			Quantity.	Value.	Quantity.	Value.
			tons.	£	tons.	£
MURCHISON GOLDFIELD.						
CUE DISTRICT.						
Cuddingwarra	...	Voided Leases	...	...	298·00	772
		Totals	...	...	**298·00**	**772**
YILGARN GOLDFIELD.						
Southern Cross	...	Voided Leases	...	...	2,548·85	1,607
		Totals	...	...	**2,548·85**	**1,607**
STATE GENERALLY.						
Fremantle ...	...	... ...	...	.	90,858·88	15,911
		Totals	...	...	**90,858·88**	**15,911**

TABLE XIX.

QUANTITY AND VALUE OF ASBESTOS REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.		TOTALS TO DATE.	
			Quantity.	Value.	Quantity.	Value.
			tons.	£	tons.	£
PILBARA GOLDFIELD.						
MARBLE BAR DISTRICT.						
Soansville ...	...	Voided Leases	...	...	42·83	1,754
		Totals	...	...	**42·83**	**1,754**

TABLE XX.

QUANTITY AND VALUE OF GODOLINITE REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM OR AREA.	REGISTERED NAME OF COMPANY OR LEASE	1916.		TOTALS TO DATE.	
			Quantity.	Value.	Quantity.	Value.
			tons.	£	tons.	£
PILBARA GOLDFIELD.						
MARBLE BAR DISTRICT.						
Cooglegong ..	(M.L. 254)	Iverna	...	...	1·00	112
		Totals	...	...	**1·00**	**112**

TABLE XXI.

QUANTITY AND VALUE OF WOLFRAM REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.			TOTALS TO DATE.		
			Ore.	Metallic contents.	Value.	Ore.	Metallic contents.	Value.
			tons.	tons.	£	tons.	tons.	£
MURCHISON GOLDFIELD.								
CUE DISTRICT.								
Callie Spring	...	Sundry Claims	20·00	·75	117	24·64	1·45	186
Cuddingwarra	...	Voided Leases	...	...	...	194·00	6·11	877
Do.	...	Sundry claims	...	...	...	20·00	·85	85
		Totals	**20·00**	**·75**	**117**	**238 64**	**8·41**	**1,148**
YALGOO GOLDFIELD.								
Yalgoo ..	M.L. (36)	Yandanoo King, North	..	..	..	·25	·12	27
		Totals	..	..	..	**·25**	**·12**	**27**
STATE GENERALLY.								
Derby ...	(146H)	Taylor's Wolfram Reward	...	...	...	27·00	2·00	120
		Totals	...	...	...	**27·00**	**2·00**	**120**

TABLE XXII.

QUANTITY AND VALUE OF MAGNESITE REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.		TOTALS TO DATE.	
			Quantity.	Value.	Quantity.	Value.
			tons.	£	tons.	£
EAST COOLGARDIE GOLDFIELD.						
BULONG DISTRICT.						
Bulong ..	A 59H	(Sheppard, W.)	97·50	97	699·00	698
		Totals	**97·50**	**97**	**699·00**	**698**

TABLE XXIII.

QUANTITY AND VALUE OF DIAMONDS REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.		TOTALS TO DATE.	
			Quantity.	Value.	Quantity.	Value.
			carats.	£	carats.	£
PILBARA GOLDFIELD.						
NULLAGINE DISTRICT.						
Nullagine ...	M.R.C.6L	(Morgans, A. E.)	...	...	...	24
		Totals	...	...	...	**24**

TABLE XXIV.

QUANTITY AND VALUE OF ANTIMONY REPORTED TO THE MINES DEPARTMENT DURING 1916, AND TOTALS TO DATE.

LOCALITY.	NUMBER OF LEASE, CLAIM, OR AREA.	REGISTERED NAME OF COMPANY OR LEASE.	1916.			TOTALS TO DATE.		
			Ore.	Metallic contents.	Value.	Ore.	Metallic contents.	Value.
			tons.	tons.	£	tons.	tons.	£
WEST PILBARA GOLDFIELD.								
Balla Balla ..	M.L. (185)	Star	20·78	11·58	491	20·78	11·58	491
		Totals	**20·78**	**11·58**	**491**	**20·78**	**11·58**	**491**

TABLE

RETURN OF ORE AND MINERALS OTHER THAN GOLD

YEAR.	COPPER.												
	COPPER ORE.										COPPER INGOT, MATTE, ETC.		Total Value of Copper Exported
	West Pilbara Gf.		Northampton Mf.		Phillips River Gf.		State generally.		Total.		State generally.		
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity	Value.	Quantity.	Value.	
	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£	tons.	£	£
1850	...	...	...	...	...	...	...	...	...	...	...	...	...
1	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	[2]†	7	...	...	...	...	...	7	...	...	7
4	...	...	...	...	...	...	...	...	...	...	...	...	...
5	...	...	2	26	...	...	...	...	2	26	...	...	26
6	...	...	57	1,018	...	...	...	...	57	1,018	...	...	1,018
7	...	...	80	1,920	...	...	...	...	80	1,920	...	...	1,920
8	...	...	433	9,531	...	...	...	...	433	9,531	...	...	9,531
9	...	...	941	14,122	...	...	...	...	941	14,122	...	...	14,122
1860	...	...	517	8,021	...	...	...	...	517	8,021	...	...	8,021
1	...	...	409	6,339	...	...	...	..	409	6,339	...	...	6,339
2	...	...	783	12,536	...	...	...	...	783	12,536	...	...	12,536
3	...	...	763	12,208	...	...	...	...	763	12,208	...	...	12,208
4	...	...	1,076	17,216	...	...	...	...	1,076	17,216	...	...	17,216
5	...	...	886	13,290	...	...	...	...	886	13,290	...	...	13,290
6	...	...	557	8,362	...	...	...	...	557	8,362	...	...	8,362
7	...	...	337	5,055	...	...	...	...	337	5,055	...	...	5,055
8	...	...	83	1,245	...	...	...	...	83	1,245	...	...	1,245
9	...	...	155	2,325	...	...	...	...	155	2,325	...	...	2,325
1870	...	...	6	90	...	...	...	...	6	90	..	...	90
1	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	...	...	...	...	...	...	...	...	...	...	...
3	...	...	56	848	...	...	...	...	56	848	...	...	848
4	...	...	67	998	...	...	...	...	67	998	...	...	998
5	...	...	205	3,071	...	...	...	...	205	3,071	...	...	3,071
6	...	...	279	4,185	...	...	...	...	279	4,185	...	...	4,185
7	...	...	54	803	...	...	...	...	54	803	...	...	803
8	...	...	9	135	...	...	...	...	9	135	...	...	135
9	...	...	...	...	...	...	...	...	...	...	...	...	...
1880	...	...	8	120	...	...	...	...	8	120	...	...	120
1	...	...	...	...	...	...	...	...	...	...	...	...	...
2	...	...	2	23	...	...	...	...	2	23	...	...	23
3	...	...	5	75	...	...	...	...	5	75	...	...	75
4	...	...	118	1,770	...	...	...	...	118	1,770	...	...	1,770
5	...	...	120	1,793	...	...	...	...	120	1,793	...	...	1,793
6	...	...	249	3,735	...	...	...	...	249	3,735	...	...	3,735
7	...	...	23	345	...	...	...	...	23	345	...	...	345
8	...	...	88	1,488	...	...	...	...	88	1,488	...	...	1,488
9	...	...	112	1,904	...	...	...	...	112	1,904	...	...	1,904
1890	...	...	8	136	...	...	...	...	8	136	...	...	136
1	263	4,462	...	...	...	...	...	...	263	4,462	...	...	4,462
2	[1]† 412	6,319	155	2,377	...	...	...	...	567	8,696	...	...	8,696
3	50	606	...	...	...	...	...	...	50	606	...	...	606
4	...	...	...	...	...	...	...	...	...	...	...	...	...
5	802	12,832	24	120	...	...	...	...	826	12,952	...	...	12,952
6	6	100	...	...	...	...	...	...	6	100	...	...	100
7	65	731	21	302	...	...	...	...	86	1,033	...	...	1,033
8	281	3,334	75	932	...	...	...	...	356	4,266	...	...	4,266
9	1,404	31,979	587	9,473	...	...	...	...	1,991	41,452	...	...	41,452
1900	544	10,696	...	...	105	2,411	197	3,355	846	16,462	249	17,475	33,937
1	1,058	26,464	1	10	1,205	22,107	397	6,322	2,661	54,903	880	55,866	110,769
2	68	1,698	20	330	162	2,469	33	489	283	4,986	175	7,918	12,904
3	4	180	25	460	302	3,538	15	349	346	4,527	1,075	33,288	37.815
4	50	500	...	...	11	154	310	3,378	371	4,032	102	3,827	7,859
5	...	...	...	...	80	2,808	713	8,576	793	11,384	794	53,867	65,251
6	112	323	...	...	...	...	224	2,930	336	6,162	343	30,367	36,529
7	...	...	...	...	...	...	3,727	61,493	3,727	61,493	1,602	141,883	203,376
8	...	...	...	...	...	...	2,503	29,272	2,503	29,272	479	27,819	57,091
9	...	...	...	...	...	...	6,959	59,541	6,959	59,541	833	45,100	104,641
1910	...	...	...	...	...	...	6,309	27,271	6,309	27,271	1,281	68,657	95,928
1911	...	...	...	...	...	...	9,825	33,709	9,825	33,709	828	44,409	78,118
1912	...	...	...	...	...	...	9,536	58,688	9,536	58,688	28	1,136	59,824
1913	...	...	...	...	...	...	4,339	136,472	4,339	136,472	82	5,891	142,363
1914	...	...	...	...	...	...	3,913	33,654	3,913	33,654	183	4,520	38,174
1915	...	...	...	...	...	...	737	13,768	737	13,768	946	77,401	91,169
1916	...	...	...	...	...	...	650	14,971	650	14,971	457	49,862	64,833
Total	...	...	...	..	...	..	...	...	66,767	779,602	10,337	669,286	1,448,888

[1]† *See* Woodward's Mining Handbook, Perth: By Authority, 1895; page 123. [2]† Weight not stated.

XXV.

ENTERED FOR EXPORT FROM 1850 TO 1916, INCLUSIVE.

TIN.											
BLACK TIN (Dressed Tin).								TIN INGOT. (White tin.)		Total Value of Tin Exported.	Year.
Pilbarra Gf.		Greenbushes Mf.		[2]†State generally.		Total.		Greenbushes Mf.			
Quantity.	Value.	Quantity	Value	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.		
tons.	£	tons.	£	tons.	£	tons.	£	tons.	£	£	
...	...	...	...	...	...	...	...	...	...	...	1850
...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	4
...	...	...	...	...	...	...	...	...	...	...	5
...	...	...	...	...	...	...	...	...	...	...	6
...	...	...	...	...	...	...	...	...	...	...	7
...	...	...	...	...	...	...	...	...	...	...	8
...	...	...	...	...	...	...	...	...	...	...	9
...	...	...	...	...	...	...	...	...	...	...	1860
...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	4
...	...	...	...	...	...	...	...	...	...	...	5
...	...	...	...	...	...	...	...	...	...	...	6
...	...	...	...	...	...	...	...	...	...	...	7
...	...	...	...	...	...	...	...	...	...	...	8
...	...	...	...	...	...	...	...	...	...	...	9
...	...	...	...	...	...	...	...	...	...	...	1870
...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	4
...	...	...	...	...	...	...	...	...	...	...	5
...	...	...	...	...	...	...	...	...	...	...	6
...	...	...	...	...	...	...	...	...	...	...	7
...	...	...	...	...	...	...	...	...	...	...	8
...	...	...	...	...	...	...	...	...	...	...	9
...	...	...	...	...	...	...	...	...	...	...	1880
...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	4
...	...	...	...	...	...	...	...	...	...	...	5
...	...	...	...	...	...	...	...	...	...	...	6
...	...	...	...	...	...	...	...	...	...	...	7
...	...	...	...	...	...	...	...	...	...	...	8
...	...	5	300	...	...	5	300	...	...	300	9
...	...	68	5,400	...	...	68	5,400	...	...	5,400	1890
...	...	204	10,200	...	...	204	10,200	...	...	10,200	1
...	...	265	13,843	...	...	265	13,843	...	...	13,843	2
57	3,470	171	7,664	...	...	228	11,134	...	...	11,134	3
19	940	371	14,325	...	...	390	15,274	...	...	15,274	4
...	...	277	9,703	...	...	277	9,703	...	...	9,703	5
...	...	137	4,338	...	...	137	4,338	...	...	4,338	6
...	...	96	3,275	...	...	96	3,275	...	...	3,275	7
...	...	68	2,760	...	...	68	2,760	...	...	2,760	8
30	2,025	278	21,138	...	...	308	23,163	...	...	23,163	9
368	30,146	102	8,032	...	...	470	38,178	142	18,872	57,050	1900
439	34,600	68	4,895	...	...	507	39,495	97	12,607	52,102	1
248	19,698	31	2,870	...	...	279	22,568	141	16,830	39,398	2
267	20,988	25	1,868	...	...	292	22,856	235	29,277	52,133	3
64	4,932	24	1,389	379	20,797	467	27,118	129	16,155	43,273	4
188	16,853	119	8,177	666	51,748	973	76,778	[2]†	1	76,779	5
329	28,375	444	46,254	624	64,005	1,397	138,634	45	8,746	147,380	6
...	...	...	...	1,424	151,414	1,424	151,414	78	14,725	166,139	7
...	...	...	...	1,093	83,294	1,093	83,594	[2]†	1	83,595	8
...	...	...	...	698	62,989	698	62,989	...	...	62,989	9
...	...	...	...	500	45,129	500	45,129	...	...	45,129	1910
...	...	...	...	495	55,220	495	55,220	...	...	55,220	1911
...	...	...	...	651	79,738	651	79,738	...	...	79,738	1912
...	...	...	...	484	72,142	484	72,142	...	...	72,142	1913
...	...	...	...	363	35,649	363	35,649	...	...	35,649	1914
...	...	...	...	429	41,391	429	41,391	...	...	41,391	1915
...	...	...	...	463	49,101	463	49,101	...	...	49,101	1916
...	...	...	...	...	...	13,031	1,141,384	867	117,214	1,258,598	Total

[2]† Probably the produce of Pilbara Goldfield and Greenbushes Mineral Field.

TABLE XXV.—*Return of Ore and Minerals other than Gold*

YEAR.	SILVER.		‡ LEAD.		‡ LEAD AND SILVER-LEAD.		PIG LEAD.		ZINC INGOTS AND CONCENTRATES.	
	State generally.		Northampton Mf.		State generally.		State generally.		State generally.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	ozs.	£	tons.	£	tons.	£	tons.	£	tons.	£
1850 ...	...	...	5	55	...	...	...	...	...	...
1 ...	...	...	...	...	...	...	...	...	...	...
2 ...	...	...	...	...	...	...	...	...	...	...
3 ...	...	...	[2]†	4	...	...	55	1,200	...	...
4 ...	...	...	...	...	...	...	122	2,440	...	..
5 ...	...	...	25	250	...	...	134	2,675	...	...
6 ...	...	...	...	...	...	...	60	1,200	...	...
7 ...	...	...	...	...	...	...	120	2,410	...	...
8 ...	...	...	...	...	...	...	61	1,220	...	...
9 ...	...	...	13	135	...	...	25	495	...	...
1860 ...	...	...	98	985	...	...	...	...	...	...
1 ...	...	...	79	790	...	...	...	...	...	...
2 ...	...	...	9	90	...	...	...	...	...	...
3 ...	...	...	230	2,300	...	...	...	...	...	...
4 ...	...	...	80	800	...	...	...	...	...	...
5 ...	...	...	703	8,436	...	...	...	...	...	...
6 ...	...	...	273	3,282	...	...	...	...	...	...
7 ...	...	...	902	10,824	...	...	[4]†3	50	...	...
8 ...	...	...	1,100	13,206	...	...	...	...	...	...
9 ...	...	...	699	8,394	...	...	...	...	...	...
1870 ...	...	...	1,209	14,514	...	...	...	...	...	...
1 ...	...	...	420	5,040	...	...	...	...	...	...
2 ...	...	...	364	4,368	...	...	...	...	...	...
3 ...	...	...	965	11,586	...	...	...	...	...	...
4 ...	...	...	2,144	25,725	...	...	...	...	...	...
5 ...	...	...	2,289	27,468	...	...	4	89	...	...
6 ...	...	...	2,192	26,298	...	...	[4]†7	155	...	...
7 ...	...	...	3,956	47,466	...	...	[4]†1	15	...	...
8 ...	...	...	3,618	43,410	...	...	...	...	...	...
9 ...	...	...	2,775	33,300	...	...	...	...	...	...
1880 ...	...	...	1,921	15,368	...	...	[4]†5	89	...	...
1 ...	...	...	1,401	11,204	...	...	[4]†1	20	...	...
2 ...	...	...	1,794	14,348	...	...	...	...	...	...
3 ...	...	...	1,088	7,266	...	...	...	...	...	...
4 ...	...	...	696	4,872	...	...	...	...	...	...
5 ...	...	...	465	3,255	...	...	...	...	...	...
6 ...	...	...	611	4,277	...	...	...	...	...	...
7 ...	...	...	471	4,710	...	...	[4]†6	120	...	...
8 ...	...	...	532	5,320	...	...	[4]†2	40	...	...
9 ...	...	...	250	2,500	...	...	...	...	...	...
1890 ...	...	...	214	2,135	...	...	...	...	...	...
1 ...	...	...	25	250	...	...	...	...	...	...
2 ...	...	...	30	150	...	...	...	...	...	...
3 ...	...	...	...	...	...	...	...	...	...	...
4 ...	...	...	...	...	...	...	...	...	...	...
5 ...	...	...	...	...	...	...	...	...	...	...
6 ...	...	...	...	...	...	...	...	...	...	...
7 ...	...	...	[2]†	4	...	...	[4]†1	11	...	...
8 ...	...	...	5	33	...	...	...	...	...	...
9 ...	...	...	16	96	...	...	77	1,077	...	...
1900 ...	28,749	3,594	27	242	...	...	...	...	...	...
1 ...	60,869	7,609	...	...	...	...	...	...	...	...
2 ...	83,293	9,190	...	...	...	...	...	...	...	...
3 ...	168,113	19,153	...	...	...	...	...	...	...	...
4 ...	399,190	45,912	...	...	...	...	...	...	...	...
5 ...	359,744	44,278	...	...	...	...	...	...	...	...
6 ...	282,145	37,612	...	...	...	...	...	...	...	...
7 ...	189,265	25,382	...	..	211	1,866	...	...	73	3,390
8 ...	168,455	18,877	...	...	518	5,006	...	...	11	98
9 ...	176,843	18,778	...	...	211	1,199	...	...	19	244
1910 ...	176,139	18,777	248	1,433	...	...	...	...	12	147
1911 ...	169,043	18,333	679 870	6,682 8,320	...	...	...	...	12	189
1912 ...	165,371	19,725	1,868	22,270	...	...	...	...	14	217
1913 ...	188,020	23,420	3,169	59,002	...	...	...	...	...	...
1914 ...	198,057	23,227	3,554	46,285	...	...	...	...	22	379
1915 ...	222,159	24,295	...	...	2,883	39,032	13	302	7	143
1916 ..	173,012	22,258	...	...	428	12,033	3,523	74,930	14	630
Total ...	**3,263,467**	**380,420**	**44,032**	**508,748**	**4,251**	**59,136**	**4,220**	**88,538**	**184**	**5,437**

[2]† Weight not stated. [4]† Estimated. [5]† 4 cwts. [6]† Includes Cobalt ore, 2 tons, valued at £41: Plumbago ore, 1 ton, valued at £6. ‡ Ore and Concentrates.

[9]†Includes Antimony ore, 25 tons ... ... = £630
Scheelite, 4 tons ... ... = 140
N.E.I., 71 tons ... ... = 817
Total ... £1,587

[10]† Includes Tantalite .... = £400
N.E.I., 42 tons ... ... = £2,750
Total ... £3,150

[11]†Includes Other Concentrates, 29 tons ... £108
N.E.I., 234 tons ... £627
Total ... £735

[12]† Includes N.E.I., ½ ton ... ... = £100

[13]† Includes: Iron ore, 9 tons ... ... = £7
Ores, N.E.I., 5 tons ... ... = 400
Total ... £407

entered for EXPORT from 1850 to 1916, inclusive—continued.

WOLFRAM.		NON-METALLIC MINERALS.						MINERALS NOT ELSEWHERE INCLUDED.		Total Value of Minerals other than Gold, Exported to Date.	Year.
		ASBESTOS.		COAL.		MICA.					
State generally.		State generally.		Collie River Coal Mf.		State generally.					
Quantity	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.		
tons.	£	tons.	£	tons.	£	tons.	£	tons.	£	£	
...	...	...	...	...	...	...	...	...	...	55	1850
...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	1,211	3
...	...	...	...	...	...	...	...	...	...	2,440	4
...	...	...	...	...	...	...	...	...	...	2,951	5
...	...	...	...	...	...	...	...	...	...	2,218	6
...	...	...	...	...	...	...	...	...	...	4,330	7
...	...	...	...	...	...	...	...	...	...	10,751	8
...	...	...	...	...	...	...	...	...	...	14,752	9
...	...	...	...	...	...	...	...	...	...	9,006	1860
...	...	...	...	...	...	...	...	...	...	7,129	1
...	...	...	...	...	...	...	...	...	...	12,626	2
...	...	...	...	...	...	...	...	...	...	14,508	3
...	...	...	...	...	...	...	...	...	...	18,016	4
...	...	...	...	...	...	...	...	...	...	21,726	5
...	...	...	...	...	...	...	...	...	...	11,644	6
...	...	...	...	...	...	...	...	...	...	15,929	7
...	...	...	...	...	...	...	...	...	...	14,451	8
...	...	...	...	...	...	...	...	...	...	10,719	9
...	...	...	...	...	...	...	...	...	...	14,604	1870
...	...	...	...	...	...	...	...	...	...	5,040	1
...	...	...	...	...	...	...	...	...	...	4,368	2
...	...	...	...	...	...	...	...	...	...	12,434	3
...	...	...	...	...	...	...	...	...	...	26,723	4
...	...	...	...	...	...	...	...	...	...	30,628	5
...	...	...	...	...	...	...	...	...	...	30,638	6
...	...	...	...	...	...	...	...	...	...	48,284	7
...	...	...	...	...	...	...	...	...	...	43,545	8
...	...	...	...	...	...	...	...	...	...	33,300	9
...	...	...	...	...	...	...	...	...	...	15,577	1880
...	...	...	...	...	...	...	...	...	...	11,224	1
...	...	...	...	...	...	...	...	...	...	14,371	2
...	...	...	...	...	...	...	...	...	...	7,341	3
...	...	...	...	...	...	...	...	...	...	6,642	4
...	...	...	...	...	...	...	...	...	...	5,048	5
...	...	...	...	...	...	...	...	...	...	8,012	6
...	...	...	...	...	...	...	...	...	...	5,175	7
...	...	...	...	...	...	...	...	...	...	6,848	1
...	...	...	...	...	...	...	...	...	...	4,704	9
...	...	...	...	...	...	...	...	...	...	7,671	1890
...	...	...	...	...	...	...	...	...	...	14,912	1
...	...	...	...	...	...	[2]†	25	...	...	22,714	2
...	...	...	...	...	...	[2]†	4	...	...	11,744	3
...	...	...	...	...	...	...	...	...	...	15,274	4
...	...	...	...	...	...	[2]†	3	...	...	22,658	5
...	...	...	...	...	...	...	...	...	...	4,438	6
...	...	...	...	...	...	[2]†	209	...	...	4,532	7
...	...	...	...	1	1	...	...	...	...	7,060	8
...	...	[2]†	1	798	772	[2]†	50	...	...	66,611	9
...	...	...	...	355	350	[2]†	3	5	85	95,261	1900
...	...	...	...	971	969	...	...	...	4	171,453	1
...	...	...	...	12	12	...	...	[6]† 3	47	61,551	2
...	...	[5]†	10	110	127	...	...	[7]† 22	230	109,468	3
...	...	...	...	11	7	...	...	7	81	97,132	4
...	...	...	...	108	87	...	...	[8]† 80	5,856	192,251	5
...	...	...	...	86	65	...	...	10	1,035	222,621	6
...	...	...	...	26 *1,447	28 1,138	...	...	[9]† 100	1,587	402,906	7
...	...	[2]†	1,242	13 *9,612	11 7,747	[2]†	10	[10]†	3,150	176,827	8
1	100	...	...	353 *85,647	183 93,781	...	...	[11]†263	735	282,650	9
2	190	...	...	3 *48,876	2 38,400	...	...	[12]†	100	200,106	1910
9	826	...	...	*40,063	29,344	...	...	[13]†14	407	197,439	1911
...	...	...	...	6 *42,602	6 30,721	...	...	[14]†	8	212,509	1912
1	86	...	...	*54,228	39,125	...	...	5	17	336,155	1913
½	40	...	...	*54,416	38,244	4	323	[15]†16	675	182,996	1914
¼	25	...	...	1,667 *26,167	1,513 19,288	[2]†	26	[16]†701	1,311	218,495	1915
1	128	...	...	2,447 *37,590	1,857 28,387	[2]†	10	[17]†131	10,876	265,043	1916
15	1,395	...	1,253	77,615	332,165	...	663	...	26,204	4,111,445	Total.

*Bunker Coal. [7]† Antimony ore. [8]† Includes Tantalite, 18 tons, valued at £5,729.

[14]† Includes Manganese, 2 tons ... ... = £4
N.E.I. ... ... = 4
Total ... £8

[15]† Includes Bismuth, 9 tons ... ... = £635
Graphite, 7 tons ... ... = 40
Total ... £675

[16]† Includes Bismuth, 1 ton ... ... = £37
Fireclay, 12 tons, ... = 75
Magnesite, 688 tons ... ... = 1,196
Manganese, 3 cwt. ... ... = 3
Total ... £1,311

[17]† Includes Antimony, 27 tons £580
Arsenical Ore, 11 tons .. 19
Bismuth, 4 cwt. 133
Graphite, 21 tons 284
Magnesite, 12 tons 47
Scheelite, 3 tons 438
Tantalite, 47 tons 9,375
Total ... £10,876

PART III.—ALL MINES.

TABLE XXVI.

MILLING AND CYANIDING PLANTS ERECTED IN THE RESPECTIVE GOLDFIELDS, DISTRICTS, AND MINERAL FIELDS ON THE 31ST DECEMBER, 1916, AND THE TOTAL VALUE OF MINING MACHINERY.

Mining Centre and Lease or Area.	Name of Mine, Company, or Works.	Milling.									Cyaniding.			Value of all Mining Machinery
		Batteries.	Other Mills.											
		Number of Heads of Stampers.	Prospecting Mills.	Ball Mills.	Griffin Mills.	Huntington Mills	Puddlers.	Other Crushers.	Flint Mills.	Grinding Pans.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	
	PILBARA GOLDFIELD.													
	MARBLE BAR DISTRICT.													
Bamboo Creek (695)	Bulletin	10	..	..	..	..	..	..	..	..	4	..	..	..
∧	State Battery, Bamboo Creek	5	..	..	..	..	..	..	..	..	5	..	..	..
Elsie 792	Trio	3	..	..	..	..	..	..	..	..	..	..	..	..
Lalla Rookh. R.C. 112	Lalla Rookh G.M.	10	..	..	..	..	..	..	..	..	..	3	..	..
Marble Bar. 694	Jo Jo G.M.	5	..	..	..	..	..	..	..	..	..	..	..	..
∧	State Battery, Marble Bar	5	..	..	..	..	..	..	..	..	..	..	..	..
Warrowoona 604	Klondyke Boulder G.M. Co., Ltd.	15	..	..	..	..	..	..	..	..	..	..	..	..
Yandicoogina. M.A. 26.	Lady Adelaide Battery	10	..	..	..	..	..	..	..	..	4	..	..	..
	Total	63	..	..	..	..	..	..	..	..	13	3	..	£9,200
	NULLAGINE DISTRICT.													
Eastern Creek. M.A. 11.	Doherty's Works	10	..	..	..	..	..	..	..	..	4	..	..	..
Middle Creek. 106L	Barton	10	..	..	..	..	..	..	..	1	6	..	..	..
McPhee's Crk. M.A. 12L.	Judge	3	..	..	..	..	..	..	..	..	..	..	..	..
20-Mile Sandy ∧	State Battery, 20-Mile Sandy	5	..	..	..	..	..	..	..	1	3	..	..	..
	Total	28	..	..	..	..	..	..	..	2	13	..	..	£32,025
	WEST PILBARA GOLDFIELD.													
Station Peak. 165	Belladonna	20	..	..	..	..	..	..	..	..	2	..	..	..
Towranna. 155	Tauri Tom Tit	10	..	..	..	..	..	..	..	..	..	..	..	..
Weerianna. M.A. 12.	Porteminna Battery	10	..	..	..	..	..	..	..	..	..	..	..	..
	Total	40	..	..	..	..	..	..	..	..	2	..	..	£3,100
	GASCOYNE GOLDFIELD.													
Bangemall. 32	Gem	1	..	..	..	..	..	..	..	..	..	..	..	..
	Total	1	..	..	..	..	..	..	..	..	..	..	..	£1,100
	PEAK HILL GOLDFIELD.													
(1P, etc.)	(Peak Hill Goldfields, Ltd.)	30	..	..	..	..	..	2	..	..	8	3	..	..
∧	State Battery, Mt. Egerton	5	..	..	..	..	..	..	..	..	..	..	..	..
∧	State Battery, Ravelstone	5	..	..	..	..	..	..	..	..	..	..	..	..
∧	Purcell's Works	..	..	..	..	..	..	..	..	..	5	..	..	..
	Total	40	..	..	..	..	..	2	..	..	13	3	..	£7,963

TABLE XXVI.—*Milling and Cyaniding Plants erected in the respective Goldfields, Districts, etc.*—continued.

Mining Centre and Lease or Area.	Name of Mine, Company, or Works.	Milling.									Cyaniding.			Value of all Mining Machinery.
		Batteries.	Other Mills.											
		Number of Heads of Stampers.	Prospecting Mills.	Ball Mills.	Griffin Mills.	Huntington Mills.	Puddlers.	Other Crushers.	Flint Mills.	Grinding Pans.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	
	EAST MURCHISON GOLDFIELD.													
	LAWLERS DISTRICT.													
Bronzewing.														
(1017)	Bronzewing	3	..	..	..	..	..	..	..	..	2	..	..	..
Kathleen Valley.														
(113)	Nil Desperandum	10	..	..	..	..	..	..	..	..	..	..	..	..
382	Yellow Aster	10	..	..	..	..	..	..	..	..	4	..	..	..
Lake Darlot.														
138H	Murie & Dowson's Cyanide Works ..	..	..	..	..	..	..	..	..	..	5	..	..	..
633, etc.	Zangbar	10	..	..	..	..	..	..	..	..	..	..	..	..
Lawlers.														
M.A. 24.	Cinderella Works	..	..	..	..	..	..	..	..	..	12	..	..	..
1171	Great Eastern	5	..	..	..	..	..	..	..	..	6	..	..	..
M.A. 11.	Lawlers Public Battery	..	..	..	..	..	..	..	..	..	4	..	..	..
M.H.L. 9.	Leinster Homestead leases ..	..	..	..	..	..	..	..	..	..	4	..	..	..
1172	Queen Battery	5	..	..	..	..	..	..	..	..	5	..	..	..
910	Sunrise	5	..	..	..	..	..	..	..	..	2	..	..	..
1188	Try It	5	..	..	..	..	..	..	..	..	..	..	..	..
58, etc.	Waroonga G.M. Co., Ltd.	10	..	..	..	..	..	..	..	..	..	..	..	..
Sir Samuel.														
M.A. 28.	Bellevue	40	..	..	..	..	..	1	..	1	..	..	..	..
⩚	State Battery, Sir Samuel	5	..	..	..	..	..	..	..	..	3	..	..	..
	Total	**108**	..	..	..	..	..	**1**	..	**1**	**47**	..	..	**£17,381**
	WILUNA DISTRICT.													
Collavilla.														
(71J)	May Queen Reward	5	..	..	..	..	..	..	..	..	..	..	..	..
Mt. Keith.														
⩚	State Battery, Mt. Keith	5	..	..	..	..	..	..	..	1	4	..	..	..
Wiluna.														
M.A., 57.	Christensen's Battery	..	1	..	..	..	..	..	..	..	..	..	..	..
10J	Moonlight	10	..	..	..	..	..	..	..	2	..	6	1	..
6J, etc.	Western Machinery Co., Ltd. ..	30	1	..	..	..	..	1	..	4	13	13	6	..
12J, etc.	Wiluna G.Ms., Ltd.	25	..	..	..	..	..	1	..	3	9	3	1	..
⩚	State Battery, Wiluna	10	..	..	..	..	..	1	1	1	..	4	1	..
	Total	**85**	**2**	..	..	..	..	**3**	**1**	**11**	**26**	**26**	**9**	**£61,412**
	BLACK RANGE DISTRICT.													
Barrambie.														
773B	Barrambie Ranges G.M. Co., N.L. ..	10	..	..	..	..	..	..	..	..	6	..	..	..
Birrigrin,														
(128B)	Pelerin	5	..	..	..	..	..	..	..	..	2	..	..	..
M.A. 8B.	Reply Works	5		..	..	..	..	..	..	..	4	..	..	..
Curran's Find.														
641B	Red, White, and Blue	5	..	..	..	..	..	..	..	..	..	..	..	..
Erroll's.														
M.A. 9B.	Great Saddle	10	..	..	..	..	..	..	..	1	8	..	..	..
Maninga Marley.														
203B	Havilah	10	..	..	..	..	..	..	..	1	4	..	..	..
M.A., 6B.	Maninga Marley	10	..	..	..	..	..	..	..	..	3	2	1	..
Montagu.														
(135B)	Montagu Boulder	10	..	..	..	..	..	..	..	1	3	..	..	..
Sandstone.														
4B, etc.	Black Range M.Co., N.L.	20	..	..	..	..	..	..	..	..	12	..	..	..
M.A., 12B.	Yuanmi G.Ms., Ltd.	20	..	..	..	..	..	2	..	3	..	5	2	..
⩚	State Battery, Black Range	10	..	..	..	..	..	1	..	2	5	..	..	..
Youanme.														
518B, etc.	Yuanmi G.Ms., Ltd.	20	..	1	..	..	..	..	1	2	6	3	1	..
⩚	State Battery, Youanme	5	..	..	..	..	..	..	..	..	2	..	..	..
	Total	**140**	..	**1**	..	..	..	**3**	**1**	**10**	**55**	**10**	**4**	**£111,234**

TABLE XXVI.—*Milling and Cyaniding Plants erected in the respective Goldfields, Districts, etc.*—continued.

Mining Centre and Lease or Area.	NAME OF MINE, COMPANY, OR WORKS.	MILLING.									CYANIDING.			Value of all Mining Machinery
		Batteries.	Other Mills.											
		Number of Heads of Stampers.	Prospecting Mills.	Ball Mills.	Griffin Mills.	Huntington Mills.	Puddlers.	Other Crushers.	Flint Mills.	Grinding Pans.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	
	MURCHISON GOLDFIELD.													
	CUE DISTRICT.													
Cuddingwarra.														
1860	Big Bell	10	..	..	..	..	..	..	..	..	6	1	..	..
(595)	Victory United	10	..	..	..	..	..	..	..	..	..	..	..	..
T.A., 26.	Wright's Works	..	..	..	..	..	..	..	..	..	3	..	..	..
Cue.														
(1833)	Agamenon	5	..	..	..	..	..	..	..	..	..	..	..	..
203, etc.	Cue, No. 1	20	..	..	..	..	..	..	..	1	6	..	..	..
(1020)	Gem of Cue Extended	15	..	..	..	..	..	..	..	..	..	..	..	..
1148, etc.	Light of Asia	..	..	..	..	..	..	1	..	..	..	..	..	..
Mindoolah.														
(1609)	Mindoolah Battery	10	..	..	..	..	..	..	..	..	..	..	..	..
Tuckabiano.														
1914	Triplicate	5	..	..	..	..	..	..	..	..	..	..	..	..
Tuckanarra.														
⩚	State Battery, Tuckanarra	10	..	..	..	..	..	..	..	..	..	..	..	..
	Total	**85**	..	..	..	..	..	**1**	..	**1**	**15**	**1**	..	**£27,906**
	MEEKATHARRA DISTRICT.													
Gabanintha.														
1324N	Hamburg Belle	5	..	..	..	..	..	..	..	..	2	..	..	..
Garden Gully.														
1344N	Kyarra G.M., N.L.	10	..	..	..	..	..	..	..	1	8	..	1	..
Gum Creek.														
M.A., 11N.	Connecticut	5	..	..	..	..	..	..	..	..	..	..	..	..
Meekatharra.														
597N, etc.	Commodore G.M. Co., N.L.	10	..	..	..	..	..	..	..	..	4	3	1	..
477N	Fenian leases	15	..	..	..	..	..	2	..	8	..	8	1	..
555N	Ingliston	10	..	..	..	..	..	..	..	..	..	..	..	..
475N	Ingliston Consols Extended	15	..	..	..	..	..	..	..	..	6	..	..	..
398N, etc.	Ingliston Extended G.Ms., Ltd.	10	..	..	..	..	..	..	..	3	5	2	1	..
533N	Marmont	10	..	..	..	..	..	..	..	..	..	..	..	..
507N, etc.	Queenhills Gold Mines, Ltd.	2	..	..	..	..	..	..	2	2	..	3	1	..
⩚	State Battery, Meekatharra	5	..	..	..	..	..	..	..	1	6	..	..	..
Nannine.														
16N, etc.	Nannine leases	10	..	..	..	..	..	..	..	2	4	..	..	..
Quinn's.														
⩚	State Battery, Quinn's	5	..	..	..	..	..	..	..	1	5	..	..	..
Ruby Well.														
1261N	Harder to Find	5	..	..	..	..	..	..	..	..	4	..	..	..
1291N	Waterloo	5	..	..	..	..	..	..	..	..	..	..	..	..
	Total	**122**	..	..	..	..	..	**2**	**2**	**18**	**44**	**16**	**5**	**£149,347**
	DAY DAWN DISTRICT.													
Day Dawn.														
389D	Creme d'Or	5	..	..	..	..	..	..	..	..	5	..	..	..
1D, etc.	Great Fingall Consolidated, Ltd.	40	..	..	..	..	..	4	..	8	17	11	2	..
(138D)	Murchison Associated	10	..	..	..	..	..	..	..	..	..	..	..	..
Webb's Patch.														
513D	Black Range Pinnacles Co., N.L.	10	..	..	..	..	..	..	..	4	..	6	24	..
	Total	**65**	..	..	..	..	..	**4**	..	**12**	**22**	**17**	**26**	**£162,300**
	MOUNT MAGNET DISTRICT.													
Boogardie.														
696M	Sirdar	..	..	..	..	..	..	..	..	..	3	..	..	..
⩚	State Battery, Boogardie	5	..	..	..	..	..	..	..	1	5	..	..	..
Lennonville.														
964M, etc.	Empress leases	5	..	..	..	..	..	..	..	..	..	..	..	..
⩚	State Battery, Lennonville	10	..	..	..	..	..	..	..	..	..	..	..	..
Mt. Magnet.														
1032M	Early Bird	5	..	..	..	..	..	..	..	..	..	..	..	..
M.A., 6M.	Great Boulder, No. 1, Ltd.	10	..	..	..	..	..	..	..	..	..	..	..	..
1013M	Mars	..	1	..	..	..	..	..	..	..	7	..	..	..
1151M	Morning Star	10	..	..	..	..	..	..	..	1	6	..	1	..
1075M	New Havelock	5	..	..	..	..	..	..	..	..	..	..	..	..
1095M	Pearl	..	1	..	..	..	..	1	..	..	..	..	..	..
Paynesville.														
T.A., 9.	Paynesville Cyanide Plant	..	..	..	..	..	1	..	..	..	3	..	..	..
	Total	**50**	**2**	..	..	..	**1**	**1**	..	**2**	**24**	..	**1**	**£25,733**

TABLE XXVI.—*Milling and Cyaniding Plants erected in the respective Goldfields, Districts, etc.*—continued.

Mining Centre and Lease or Area.	Name of Mine, Company, or Works.	Milling.									Cyaniding.			Value of all Mining Machinery.
		Batteries.	Other Mills.											
		Number of Heads of Stampers.	Prospecting Mills.	Ball Mills.	Griffin Mills.	Huntington Mills.	Puddlers.	Other Crushers.	Flint Mills.	Grinding Pans.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	
	YALGOO GOLDFIELD.													
Field's Find														
680	Field's Find, Extended	10	..	..	..	..	..	..	..	..	4	..	..	..
854	Marguerite	3	..	..	..	..	..	..	..	..	..	..	..	..
Noongal.														
M.A., 18.	Melville Battery	5	..	..	..	..	..	..	..	..	..	..	..	..
Payne's Find.														
606	Payne's Find Development Co., N.L.	5	..	..	..	..	..	..	..	..	2	..	..	..
∧	State Battery, Payne's Find ..	5	..	..	..	..	..	..	..	1	3	..	..	..
Rothesay.														
749	British Queen	5	..	..	..	..	..	..	..	..	6	..	..	..
Warriedar.														
699, etc.	Yuanmi Gold Mines, Ltd. (Warriedar Options)	10	..	..	..	..	..	..	..	2	4	8	..	..
∧	State Battery, Warriedar	5	..	..	..	..	..	..	..	1	..	..	..	..
Yalgoo.														
M.A., 17.	Ivanhoe Works	5	..	..	..	..	..	..	..	..	..	..	..	..
Yuin.														
712, etc.	Bullrush Gold Estates, N.L. ..	20	..	..	..	..	..	..	..	5	..	..	..	..
	Total	**73**	..	..	..	..	..	..	..	**9**	**19**	**8**	..	**£35,320**
	MT. MARGARET GOLDFIELD.													
	MT. MORGANS DISTRICT.													
Korong.														
313F	Royal Flush	10	..	..	..	..	..	..	..	..	..	..	..	..
Mt. Margaret.														
314F	Mt. Morven	5	..	..	..	..	..	..	..	..	3	..	..	..
Mt. Morgans.														
5F, etc.	Westralia Mt. Morgans Mines, N.L. ..	10	..	..	..	..	..	..	..	3	..	2	1	..
325F	Millionaire Works	5	..	..	..	..	..	..	..	..	4	..	..	..
Murrin Murrin.														
208F	Alix Junior	5	..	..	..	..	..	..	..	..	..	..	..	..
194F	Hill's Proprietary	20	..	..	..	..	..	..	..	..	9	..	..	..
	Total	**55**	..	..	..	..	..	..	..	**3**	**16**	**2**	**1**	**£7,559**
	MT. MALCOLM DISTRICT.													
Diorite King.														
1459C	King of the Hills	5	..	..	..	..	..	..	..	..	3	..	..	..
Leonora.														
1479C	Lloyd George G.Ms., Ltd.	5	..	..	..	..	..	..	..	..	..	..	..	..
1485C	Ping Pong	10	..	..	..	..	..	..	..	..	..	..	..	..
190C, etc.	Sons of Gwalia, Ltd.	50	..	..	..	..	..	..	3	10	..	8	2	..
198, etc.	Sons of Gwalia South G.Ms., Ltd. ..	10	..	..	..	..	..	1	..	3	..	..	..	..
∧	State Battery, Leonora	10	..	..	..	..	..	..	..	1	5	..	..	..
Mt. Clifford.														
1329C	Victory, No. 1	5	..	..	..	..	..	..	..	..	..	..	..	..
Mt. Malcolm.														
1175C	North Star: Malcolm Prospecting Co., N.L.	10	..	..	..	..	..	..	..	..	..	..	..	..
1470C	Never Tire	2	..	..	..	..	..	..	..	..	..	..	..	..
Mertondale.														
(638C)	Merton's Reward	10	..	..	..	..	..	..	..	..	..	8	2	..
Pig Well.														
1295C, etc.	Starlight G.M. Syndicate, N.L. ..	10	..	..	..	..	..	..	..	1	..	..	..	..
	Total	**127**	..	..	..	..	..	**1**	**3**	**15**	**8**	**16**	**4**	**£231,462**

TABLE XXVI.—*Milling and Cyaniding Plants erected in the respective Goldfields, Districts, etc.*—continued.

Mining Centre and Lease or Area.	Name of Mine, Company, or Works.	Milling.									Cyaniding.			Value of all Mining Machinery.
		Batteries.	Other Mills.											
		Number of Heads of Stampers.	Prospecting Mills.	Ball Mills.	Griffin Mills.	Huntington Mills.	Puddlers.	Other Crushers.	Flint Mills.	Grinding Pans.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	
	MT. MARGARET GOLDFIELD—*continued.*													
	MT. MARGARET DISTRICT.													
Burtville.														
1935T	Amalgamated Westralia G.M. Co., N.L.	5	..	..	..	..	..	..	..	..	..	..	..	..
1044T	Nil Desperandum	..	..	1	..	..	..	..	..	1	..	..	..	..
∧	State Battery, Burtville	10	..	..	..	..	..	..	..	2	3	..	..	..
Erlistoun.														
M.A., 18T	Little Doris	5	..	..	..	..	..	..	..	..	..	..	..	..
1990T	Mulga Queen Consols	10	..	..	..	..	..	..	..	1	4	..	..	..
M.A., 20T	Westralia Tasmania	5	..	..	..	..	..	..	..	..	4	..	..	..
Euro.														
1984T	Lone Star	5	..	..	..	..	..	..	..	..	5	..	..	..
Laverton.														
829T, etc.	Ida H. G.M. Co., Ltd.	10	..	..	..	..	..	1	..	2	..	2	..	..
715, etc.	Lancefield Gold Mines, Ltd. ..	..	..	5	..	..	..	1	..	..	..	6	3	..
1897T	Mary Mac G.M. Co., N.L.	10	..	..	..	..	..	..	..	4	..	4	..	..
∧	State Battery, Laverton	10	..	..	..	..	..	..	..	1	3	..	..	..
	Total	**70**	..	**6**	..	..	..	**2**	..	**11**	**19**	**12**	**3**	**£49,811**
	NORTH COOLGARDIE GOLDFIELD.													
	MENZIES DISTRICT.													
Comet Vale.														
5217Z	Gladsome	10	..	..	..	..	..	..	..	2	11	..	..	..
5300Z	Happy Jack	..	..	..	..	1	..	..	..	..	..	..	..	..
5211Z, etc.	Sand Queen G.Ms., Ltd.	20	..	..	..	..	..	2	..	5	12	..	..	..
Menzies.														
5354Z	Balkis	5	..	..	..	..	..	..	..	..	5	..	..	..
5420Z	Goodenough	5	..	..	..	..	..	..	..	..	..	..	..	..
5302Z	Lady Harriet	5	..	..	..	..	..	..	..	..	4	..	..	..
4895Z	Maranoa	5	..	..	..	..	..	..	..	..	5	2	..	..
4931Z, etc.	Menzies Consolidated G.Ms., Ltd. ..	20	..	..	..	..	..	..	..	9	15	4	1	..
M.A., 50Z	Menzies G.M.	..	..	..	..	..	..	1	..	1	..	..	..	..
3100Z, etc.	Menzies Mining and Exploration Corporation, Ltd.	10	..	..	..	..	..	..	..	..	8	..	1	..
T.A., 46Z	Gidney's Works	..	..	..	..	..	..	..	..	..	5	..	..	..
T.A., 47Z	Gidney's Works	..	..	..	..	..	..	..	..	..	8	..	..	..
Mt. Ida.														
M.A., 34Z	Mt. Ida Meteor	5	..	..	..	..	..	..	..	1	2	..	..	..
∧	State Battery, Mt. Ida	5	..	..	..	..	..	..	..	1	..	..	..	..
	Total	**90**	..	..	..	**1**	..	**3**	..	**19**	**75**	**6**	**2**	**£62,071**
	ULARRING DISTRICT.													
Davyhurst.														
(959U)	Expansion	..	..	..	..	1	..	..	..	..	3	..	..	..
' (438U)	Waihi	10	..	..	..	..	..	..	..	..	..	..	..	..
Mulline.														
123U	Riverina	10	..	..	..	..	..	..	..	..	3	..	..	..
324U, etc.	Riverina South	..	..	..	..	..	..	..	..	1	5	..	..	..
∧	State Battery, Mulline	10	..	..	..	..	..	..	..	3	4	..	..	..
Mulwarrie.														
∧	State Battery, Mulwarrie	10	..	..	..	..	..	..	..	..	7	..	..	..
	Total	**40**	..	..	..	**1**	..	..	..	**4**	**22**	..	..	**£11,977**

TABLE XXVI —*Milling and Cyaniding Plants erected in the respective Goldfields, Districts, etc.*—continued.

Mining Centre and Lease or Area.	Name of Mine, Company, or Works.	Milling.									Cyaniding.			Value of all Mining Machinery.
		Batteries.	Other Mills.											
		Number of Heads of Stampers.	Prospecting Mills.	Ball Mills.	Griffin Mills.	Huntington Mills.	Puddlers.	Other Crushers.	Flint Mills.	Grinding Pans.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	
	NORTH COOLGARDIE GOLDFIELD—*continued.*													
	NIAGARA DISTRICT.													
Kookynie.														
320G	Champion	10	..	..	..	..	..	..	..	..	..	..	..	..
T.L., 128H	Champion Cyanide Works	..	..	..	..	..	..	..	..	..	6	..	..	..
769G	Two D's	..	..	1	..	..	..	..	..	..	2	..	..	..
757G	Western Machinery Co., Ltd.	..	..	..	..	..	..	..	..	..	6	..	..	..
Niagara.														
M.A., 35G	Eagle Hawk Heather	10	..	..	..	..	..	..	..	..	..	..	..	..
(734G)	Lubra Queen	5	..	..	..	..	..	..	..	..	..	..	..	..
(419G)	Orion Mines, Ltd.	10	..	..	..	..	..	..	..	1	6	..	..	..
T.L., 108H	Bright's Cyanide Works	..	..	..	..	..	..	..	..	..	3	..	..	..
⩚	State Battery, Niagara	10	..	..	..	..	..	..	..	2	6	..	..	..
Tampa.														
(753G)	Golden Butterfly G.M. Co., N.L.	10	..	..	..	..	..	..	..	2	..	..	2	..
M.A., 59G	Grafter	5	..	..	..	..	..	..	..	..	2	..	..	..
	Total	**60**	..	**1**	..	..	..	..	..	**5**	**31**	..	**2**	**£7,137**
	YERILLA DISTRICT.													
Edjudina.														
1011R	Neta Battery	10	..	..	..	..	..	..	..	1	3	..	..	..
Linden.														
904R	Devon	5	..	..	..	..	..	..	..	1	..	..	1	..
⩚	State Battery, Linden	10	..	..	..	..	..	1	..	2	6	..	..	..
Pinjin.														
⩚	State Battery, Pinjin	5	..	..	..	..	..	..	..	1	..	..	..	..
Yarri.														
⩚	State Battery, Yarri	10	..	..	..	..	..	1	..	1	5	..	..	..
Yerilla.														
⩚	State Battery, Yerilla	5	..	..	..	..	..	..	..	1	5	..	..	..
Yunda-mindera.														
M.A., 10R.	Battles Ville	5	..	..	..	..	..	..	..	..	4	..	..	..
	Total	**50**	..	..	..	..	..	**2**	..	**7**	**23**	..	**1**	**£17,650**
	BROAD ARROW GOLDFIELD.													
Bardoc.														
1743W	Zoroastrian	5	..	..	..	..	..	1	..	..	..	..	..	..
Carnage.														
M.A., 22W.	Regan's Carnage Battery	10	..	..	..	..	..	..	..	..	..	..	..	..
Paddington.														
1733W	Mount Eddy	..	..	..	..	1	..	..	..	..	..	..	..	..
Siberia.														
1399W	Associated Northern Blocks (W.A.), Ltd.	..	..	1	..	2	..	..	..	10	..	4	2	..
1371W	Gimblet South	10	..	..	..	..	..	..	..	..	8	..	..	..
1289W	Lady Evelyn	5	..	..	..	..	..	..	..	..	..	..	..	..
1736W	Pole Battery	5	..	..	..	..	..	..	..	..	3	1	..	..
⩚	State Battery, Ora Banda	5	..	..	..	..	..	..	..	1	4	..	..	..
⩚	State Battery, Siberia	5	..	..	..	..	..	..	..	..	..	..	..	..
	Total	**45**	..	**1**	..	**3**	..	**1**	..	**11**	**15**	**5**	**2**	**£64,432**

TABLE XXVI.—*Milling and Cyaniding Plants erected in the respective Goldfields, Districts, etc.*—continued

Mining Centre and Lease or Area.	Name of Mine, Company, or Works.	Milling.								Cyaniding.			Value of all Mining Machinery
		Batteries.	Other Mills.										
		Number of Heads of Stampers.	Prospecting Mills.	Ball Mills.	Griffin Mills.	Huntington Mills.	Puddlers.	Other Crushers.	Flint Mills.	Grinding Pans.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	
	NORTH-EAST COOLGARDIE GOLDFIELD.													
	KANOWNA DISTRICT.													
Gindalbie.														
(1047x)	Eclipse	5	..	..	..	..	..	..	..	..	6	..	..	..
(1123x)	Gindalbie	10	..	..	..	..	..	3	..	..	..	..	..	..
(394x)	Kalgoorlie Foundry, Ltd.	10	..	..	..	..	..	..	..	3	12	..	..	..
(1174x)	United	5	..	..	..	..	..	..	..	..	..	..	..	..
Gordon.														
891x	Sirdar	10	..	..	..	..	..	..	..	..	8	..	..	..
Kanowna.														
(918x)	Government Well	3	..	..	..	..	..	..	..	..	..	..	..	..
M.A., 19x	Martin's Works	15	..	..	..	..	..	..	..	..	8	..	..	..
M.A., 39x	Mudlark	..	..	..	..	..	1	..	..	..	..	..	..	..
M.A., 56x	North White Feather G.Ms., Ltd.	60	..	..	..	..	..	..	..	..	16	..	..	..
Q.C., 57x	Reidel & Norton's Works	10	..	..	..	..	..	..	..	1	6	..	..	..
M.A., 58x	Lady Pratt	10	..	..	..	..	..	..	..	..	5	..	..	..
1228x	Lady Pratt Cyanide Plant	..	..	..	..	..	..	..	..	..	5	..	..	..
	Total	**138**	..	..	..	..	**1**	**3**	..	**4**	**66**	..	..	**£16,998**
	KURNALPI DISTRICT.													
Kurnalpi.														
M.A., 2K	Success	5	..	..	..	..	..	..	..	..	..	..	..	..
Mulgabbie.														
M.A., 1K	Simmons Battery	..	1	..	..	..	..	..	..	..	..	..	..	..
	Total	**5**	**1**	..	..	..	..	..	..	..	..	..	..	**£170**
	EAST COOLGARDIE GOLDFIELD.													
	EAST COOLGARDIE DISTRICT.													
Boorara.														
3908E, etc.	Golden Ridge G.M. Co., Ltd.	20	..	..	..	..	..	..	..	..	6	4	1	..
Boulder.														
38E, etc.	Associated G.Ms., of W.A., Ltd.	..	..	12	..	..	..	1	..	20	..	6	9	..
49E, etc.	Associated Northern Blocks (W.A.), Ltd.	..	..	..	..	1	..	4	..	..	2	6	1	..
351E, etc.	Golden Horseshoe Estates, Ltd.	140	..	1	..	..	2	6	15	24	20	22	20	..
50E	Great Boulder No. 1, Ltd.	10	..	..	..	..	..	..	..	1	..	..	..	..
66E	Great Boulder Perseverance G.M. Co., Ltd.	..	..	8	..	..	..	4	2	17	..	24	13	..
M.A. 59E	Great Boulder Proprietary G.Ms., Ltd.	..	1	4	13	..	..	9	..	20	..	25	14	..
3643E	Hainault Sulphide Plant	..	..	2	..	..	..	..	..	..	..	..	..	..
M.A., 5E	Hannans Central Battery	20	..	..	..	..	..	1	..	..	13	3	2	..
4317E, etc.	Idaho	10	..	..	..	..	..	..	..	1	6	..	..	..
946E	Ironsides North	10	..	..	..	..	..	..	..	2	7	..	..	..
31E, etc.	Ivanhoe Gold Corporation, Ltd.	100	..	..	..	..	..	3	2	25	32	11	9	..
22E, etc.	Kalgurli G.Ms., Ltd.	..	..	9	..	..	..	5	..	18	..	16	9	..
15E, etc.	Lake View and Star, Ltd.	75	..	1	..	..	..	7	8	21	..	27	15	..
33E, etc.	New North Boulder G.Ms., Ltd.	..	..	..	..	1	..	..	..	1	4	..	..	..
281E, etc.	North Kalgurli (1912) Ltd.	20	..	..	..	..	..	..	..	..	9	3	1	..
6E, etc.	Oroya Links, Ltd.	50	..	2	..	..	..	..	6	3	..	13	8	..
1208E, etc.	South Kalgurli Consolidated, Ltd.	40	..	4	..	..	..	2	..	15	34	11	10	..
4509E	Adelaide Enterprise Prospecting Syndicate, N.L.	..	..	..	..	1	..	..	..	..	..	..	..	..
M.A., 65E	Adeline Crushing Mill	..	..	..	..	1	..	..	..	..	4	..	..	..
796E	Bonnie Lass (Raven Battery)	10	..	..	..	..	..	..	..	..	13	..	..	..
M.A., 5E	Brown Hill Consols, Ltd.	20	..	..	..	..	..	..	..	..	18	3	2	..
4E	Cassidy Hill	..	..	..	..	1	..	..	..	1	4	..	..	..
4545E	Creswick Battery	..	1	..	..	..	..	..	..	..	..	..	..	..
M.A., 64E	Dunstan & Cummings' Plant	..	..	..	..	..	..	1	..	..	12	..	..	..
4546E, etc.	Hannan's Reward, Ltd.	20	..	..	..	2	..	..	..	..	3	..	..	..
L.C., 345E	Mystery Battery	..	..	..	..	1	..	..	..	..	3	..	..	..
	Total	**545**	**2**	**43**	**13**	**8**	**2**	**43**	**33**	**169**	**190**	**174**	**114**	**£1,331,478**

TABLE XXVI.—*Milling and Cyaniding Plants erected in the respective Goldfields, Districts, etc.*—continued.

Mining Centre and Lease or Area.	Name of Mine, Company, or Works.	Milling.									Cyaniding.			Value of all Mining Machinery.
		Batteries.	Other Mills.											
		Number of Heads of Stampers.	Prospecting Mills.	Ball Mills.	Griffin Mills.	Huntington Mills.	Puddlers.	Other Crushers.	Flint Mills.	Grinding Pans.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	
	EAST COOLGARDIE GOLDFIELD—*continued.*													
	BULONG DISTRICT.													
Randalls.														
M.A., 68Y	Hardcastle	20	..	..	..	..	..	1	..	..	..	..	..	..
1079Y	Comstock	10	..	..	..	..	..	..	..	..	8	..	..	..
1086Y	Transcontinental leases	10	..	..	..	..	..	..	..	..	6	..	..	..
	Total	**40**	..	..	..	..	..	**1**	..	..	**14**	..	..	**£9,800**
	COOLGARDIE GOLDFIELD.													
	COOLGARDIE DISTRICT.													
Bonnievale.														
(595)	Gem	15	..	..	..	..	..	..	..	..	2	..	..	..
4558	New Victoria	10	..	..	..	..	..	..	..	..	5	..	..	..
(144)	Westralia and East Extension Mines, Ltd.	40	..	..	..	..	..	1	..	1	..	..	..	..
Burbanks.														
134, etc.	Burbanks Birthday G.Ms., Ltd.	60	..	..	..	..	..	..	..	..	6	..	..	..
M.A., 77	Burbanks Main Lode (1904), Ltd.	20	..	..	..	..	..	..	..	..	12	..	..	..
2160	Lady Robinson G.M. Co., N.L.	10	..	..	..	..	..	..	..	..	6	..	2	..
4469	Lord Bobs	..	..	..	..	1	..	..	..	..	..	..	..	..
Coolgardie.														
(3918)	Coolgardie Redemption	10	..	..	..	..	..	..	..	..	..	..	..	..
(4434)	Daisy	3	..	..	..	..	..	1	..	1	..	..	..	..
(4392)	Garden Gully	5	..	..	..	..	..	..	..	..	..	..	..	..
(4448)	Griffiths Gold Mine	10	..	..	..	..	..	..	..	..	..	..	..	..
(33)	Howell's Cyanide Plant	..	..	..	..	..	..	..	..	..	5	..	..	..
4443	King Solomon	..	..	..	..	1	..	..	..	..	..	..	..	..
M.A., 11	New Bayley's Mines, Ltd.	10	..	..	..	..	..	..	..	..	8	..	..	..
/\	State Battery, Coolgardie	10	..	..	..	..	..	1	..	1	7	..	..	..
Eundynie.														
4253	Hidden Secret North	10	..	..	..	..	..	..	..	..	6	..	..	..
Gibraltar.														
(4418)	Reform	5	..	..	..	..	..	..	..	..	3	..	..	..
Gnarlbine.														
(4401)	Baroota Wonder	10	..	..	..	..	..	..	..	..	..	..	..	..
Higginsville.														
4184	Sons of Erin	10	..	..	..	..	..	..	..	..	6	..	..	..
Redhill.														
(4331)	Edquist	..	..	..	..	..	..	..	..	6	..	..	..	..
Widgiemooltha.														
M.A., 63	Highgate Battery	3	..	..	..	..	..	..	..	1	..	..	..	..
7497	Imperial Battery	5	..	..	..	..	..	..	..	..	..	..	..	..
(3906)	Yorkshire Lass	3	..	..	..	..	..	..	..	..	2	..	..	..
	Total	**249**	..	..	..	**2**	..	**3**	..	**10**	**68**	..	**2**	**£54,841**
	KUNANALLING DISTRICT.													
Balgarrie.														
M.A., 13s	Stanley Battery	5	..	..	..	..	..	..	..	..	3	..	..	..
Carbine.														
33s	Carbine	10	..	..	..	..	..	1	..	2	..	..	..	..
Dunnsville.														
(17s)	North Coolgardie	20	..	..	..	..	..	..	..	..	4	..	..	..
Jourdie Hills.														
(786s)	Jourdie Enterprise G.M. Syndicate	5	..	..	..	..	..	1	..	..	6	..	..	..
369s	Pride of the Jourdies	10	..	..	..	..	..	..	..	..	3	..	..	..
(514s)	Pride of Jourdie, North	5	..	..	..	..	..	..	..	..	..	..	..	..
Kintore.														
M.A., 14s	Hands Across the Sea	5	..	..	..	..	..	..	..	..	4	..	..	..
868s	Ormuz	..	..	..	..	1	..	..	..	..	..	..	..	..
25-Mile.														
696s	Blue Bell	5	..	..	..	..	..	..	..	..	7	..	..	..
(602s)	Shamrock	5	..	..	..	..	..	..	..	..	4	..	..	..
645	Star of Fremantle	10	..	..	..	..	..	..	..	..	4	..	..	..
(846s)	Swallow	5	..	..	..	..	..	..	..	..	..	..	..	..
	Total	**85**	..	..	..	**1**	..	**2**	..	**2**	**35**	..	..	**£11,525**

TABLE XXVI.—*Milling and Cyaniding Plants erected in the respective Goldfields, Districts, etc.*—continued.

Mining Centre and Lease or Area.	Name of Mine, Company, or Works.	Milling.									Cyaniding.			Value of all Mining Machinery
		Batteries.	Other Mills.											
		Number of Heads of Stampers.	Prospecting Mills.	Ball Mills.	Griffin Mills.	Huntington Mills.	Puddlers.	Other Crushers.	Flint Mills.	Grinding Pans.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	
	YILGARN GOLDFIELD.													
Bullfinch.														
914, etc.	Bullfinch Proprietary (W.A.), Ltd. ..	20	..	..	..	..	..	..	2	2	..	5	3	..
Corinthian.														
896, etc.	Corinthian North G.Ms., Ltd. ..	20	..	2	..	..	1	2	2	2	..	4	2	..
Golden Valley.														
M.A., 11	Violet Battery	5	..	..	..	..	..	..	..	1	4	..	..	..
Greenmount.														
550	Sunbeam	5	..	..	..	..	..	..	..	1	7	..	..	..
536	Transvaal	20	..	..	..	..	..	..	..	..	..	..	..	..
Hope's Hill.														
M.A., 14	Lakeside Battery	10	..	..	..	..	..	..	..	1	6	..	..	..
Marvel Loch.														
768	Donovan's Find Battery	5	..	..	..	..	..	..	..	..	13	..	..	..
719, etc.	Great Victoria	10	..	..	..	..	..	..	..	3	10	..	..	..
(714)	Marvel Loch Cyanide Works ..	..	..	..	..	..	..	..	..	..	10	..	..	..
M.A., 16	Mountain Queen, Ltd...	2	..	..	..	..	..	..	..	3	..	..	1	..
M.A., 18	Never Never Works	10	..	..	..	..	..	..	..	..	3	..	..	..
Mt. Jackson.														
1933	Butcher Bird, No. 1	5	..	..	..	..	..	..	..	..	..	..	..	..
Parker's Range.														
(508)	Australia	5	..	..	..	..	..	..	..	..	5	..	..	..
724	Spring Hill G.M. Co., N.L.	10	..	..	..	..	..	..	..	..	3	..	..	..
Southern Cross.														
(2416)	Maori Lass, Ltd.	10	..	..	..	..	..	..	..	..	..	..	..	..
Weston's.														
2769	Edna May Battler G.M. Co., N.L. ..	5	..	..	..	..	..	..	..	..	..	..	..	..
2291	Edna May Central G.Ms., N.L. ..	10	..	..	..	..	..	..	..	2	..	..	..	..
2180	Edna May G.M. Co., N.L.	10	..	..	..	..	..	..	..	2	12	..	..	..
2087	Greenfinch Proprietary G.M. Co., N.L.	5	..	..	..	..	..	..	..	1	8	..	..	..
2168	Myrtle Consols	10	..	..	..	..	..	..	..	..	..	..	..	..
	Total	**177**	..	**2**	..	..	**1**	**2**	**4**	**18**	**81**	**9**	**6**	**£244,2**
	DUNDAS GOLDFIELD.													
Norseman.														
1173	Benson	10	..	..	..	..	..	..	..	..	..	..	..	..
938, etc.	Hampton Uruguay, Ltd.	10	..	..	..	..	..	..	..	4	12	4	1	..
M.A., 33	Lady Mary Battery	10	..	..	..	..	..	..	..	..	..	..	..	..
M.A., 31	Mararoa G.M. Co., N.L.	20	..	..	..	..	..	..	..	5	17	4	1	..
106, etc.	Princess Royal G.M. Co., N.L. ..	20	..	..	..	..	..	2	..	5	3	..	..	..
1021	Princess Royal North	10	..	..	..	..	..	..	..	2	2	2	..	..
M.A., 18	Rawlings, Bullen, & Rumble ..	10	..	..	..	..	..	..	..	..	4	..	..	..
990	Viking No. 1 Syndicate	10	..	..	..	..	..	..	..	..	11	..	..	..
A	State Battery, Norseman	5	..	..	..	..	..	..	..	1	6	..	..	..
	Total	**105**	..	..	..	..	..	**2**	..	**17**	**55**	**10**	**2**	**£30,8**
	PHILLIPS RIVER GOLDFIELD.													
Kundip.														
136, etc.	Flag leases	5	..	..	..	..	..	..	..	..	..	..	..	..
M.A., 6	Gem	5	..	..	..	..	..	..	..	..	4	..	..	..
151, etc.	Gem Consolidated	5	..	..	..	..	..	..	..	..	..	..	..	..
M.L., 52	Harbour View Gold and Copper Co., Ltd.	10	..	..	..	..	..	..	..	1	..	..	..	..
74	Two Boys	10	..	..	..	..	..	..	..	..	..	..	..	..
Mt. Purchas.														
M.A., 18	Mt. Purchas Prospecting Plant ..	..	..	1	..	..	..	..	..	..	..	..	..	..
Ravensthorpe.														
153	Maori Queen	..	1	..	..	..	..	1	..	..	..	..	..	..
M.A., 4	Ravensthorpe Battery Co., Ltd. ..	10	..	..	..	..	..	..	..	..	..	..	..	..
	Total	**45**	**1**	**1**	..	..	..	**1**	..	**1**	**4**	..	..	**£13,1**
	State Generally	..	..	1	..	..	..	1	..	..	..	..	..	..
	Total	..	..	**1**	..	..	..	**1**	..	..	..	..	..	**£30,0**

TABLE XXVI.—*Milling and Cyaniding Plants erected in the respective Goldfields, Districts, etc.*—continued.

GOLDFIELD.	DISTRICT.	MILLING.									CYANIDING.			Total Value of all Mining Machinery.
		Batteries.	Other Mills.											
		Number of Heads of Stampers.	Prospecting Mills.	Ball Mills.	Griffin Mills.	Huntington Mills.	Puddlers.	Other Crushers.	Flint Mills.	Grinding Pans.	Leaching Vats.	Agitating Vats.	Vacuum Filters and Presses.	
	GOLD MINING.													
KIMBERLEY	..	..	..	..	..	..	..	..	..	..	..	..	..	..
PILBARA	Marble Bar	63	..	..	..	..	..	..	..	..	13	3	..	9,200
	Nullagine	28	..	..	..	..	..	..	..	2	13	..	..	32,025
WEST PILBARA	..	40	..	..	..	..	..	..	..	..	2	..	..	3,100
ASHBURTON	..	..	..	..	..	..	..	..	..	..	..	..	..	..
GASCOYNE	..	1	..	..	..	..	..	..	..	..	..	..	..	1,100
PEAK HILL	..	40	..	..	..	..	..	2	..	..	13	3	..	7,963
EAST MURCHISON	Lawlers	108	..	..	..	..	..	1	..	1	47	..	..	17,381
	Wiluna	85	2	..	..	..	..	3	1	11	26	26	9	61,412
	Black Range	140	..	1	..	..	..	3	1	10	55	10	4	111,234
MURCHISON	Cue	85	..	..	..	..	..	1	..	1	15	1	..	27,906
	Meekatharra	122	..	..	..	..	..	2	2	18	44	16	5	149,847
	Day Dawn	65	..	..	..	..	..	4	..	12	22	17	26	162,300
	Mt. Magnet	50	2	..	..	..	1	1	..	2	24	..	1	25,733
YALGOO	..	73	..	..	..	..	..	..	..	9	19	8	..	35,320
MT. MARGARET	Mt. Morgans	55	..	..	..	..	..	..	..	3	16	2	1	7,559
	Mt. Malcolm	127	..	..	..	..	..	1	3	15	8	16	4	231,462
	Mt. Margaret	70	..	6	..	..	..	2	..	11	19	12	3	49,811
NORTH COOLGARDIE	Menzies	90	..	..	..	1	..	3	..	19	75	6	2	62,071
	Ularring	40	..	..	..	1	..	..	..	4	22	..	..	11,977
	Niagara	60	..	1	..	..	..	..	..	5	31	..	2	7,137
	Yerilla	50	..	..	..	..	..	2	..	7	23	..	1	17,650
BROAD ARROW	..	45	..	1	..	3	..	1	..	11	15	5	2	64,432
N.E. COOLGARDIE	Kanowna	138	..	..	..	..	1	3	..	4	66	..	..	16,998
	Kurnalpi	5	1	..	..	..	..	..	..	..	..	..	..	170
EAST COOLGARDIE	East Coolgardie	545	2	43	13	8	2	43	33	169	190	174	114	1,331,478
	Bulong	40	..	..	..	..	..	1	..	..	14	..	..	9,800
COOLGARDIE	Coolgardie	239	..	..	..	2	..	9	..	10	68	..	2	54,841
	Kunanalling	85	..	..	..	1	..	2	..	2	35	..	..	11,525
YILGARN	..	177	..	2	..	..	1	2	4	18	81	9	6	244,273
DUNDAS	..	105	..	..	..	..	..	2	..	17	55	10	2	30,864
PHILLIPS RIVER	..	45	1	1	..	..	..	1	..	1	4	..	..	13,100
STATE GENERALLY	..	..	..	1	..	..	..	1	..	..	..	..	..	30,000
	Total Gold Mining Machinery ..	**2,826**	**8**	**56**	**13**	**16**	**5**	**84**	**44**	**362**	**1,015**	**318**	**184**	**£2,839,669**
	LEAD MINING.													
NORTHAMPTON M.F.	..	..	..	..	..	..	..	5	..	..	..	..	..	28,000
	Total Lead Mining Machinery ..	..	..	..	..	..	..	**5**	..	..	..	..	..	**£28,000**
	TIN MINING.													
PILBARA	Marble Bar	..	..	..	..	1	..	2	..	..	..	..	..	25,300
GREENBUSHES TINFIELD	..	10	..	..	..	1	3	5	..	..	..	..	..	20,735
	Total Tin Mining Machinery ..	**10**	..	..	..	**2**	**3**	**7**	..	..	..	..	..	**£46,035**
	COPPER MINING.													
PHILLIPS RIVER	..	..	..	..	..	..	..	10	..	2	..	..	..	78,000
WEST PILBARA	..	..	..	..	..	..	..	..	..	..	..	..	..	101,067
MT. MARGARET	Mt. Morgans	..	..	..	..	..	..	..	..	..	..	..	..	1,850
	Total Copper Mining Machinery ..	..	..	..	..	..	..	**10**	..	**2**	..	..	..	**£180,917**
	COAL MINING.													
COLLIE RIVER COALFIELD	..	..	..	..	..	..	..	..	..	..	..	..	..	68,654
	Total Coal Mining Machinery ..	..	..	..	..	..	..	..	..	..	..	..	..	**£68,654**
Total Machinery other than Gold Mining ..		**10**	..	..	..	**2**	**3**	**22**	..	**2**	..	..	..	**£323,606**
Total all Mining Machinery		**2,836**	**8**	**56**	**13**	**18**	**8**	**106**	**44**	**364**	**1,015**	**318**	**184**	**£3,163,275**

APPENDIX.

ROYAL MINT, PERTH BRANCH.

Subject to the Regulations, any person may deposit gold at the Mint in his own name. Those who cannot attend personally for the purpose may send the gold by an agent, under Police escort, or by Post.

A circular can be obtained from the Deputy Master of the Mint giving all necesssary information for intending depositors, conditions of the Escort Service, Coining Regulations, etc., etc.

An Escort Service is provided by the Police Department for parcels of all sizes. The consignor pays for the carriage by coach or train, but the escort charges may be collected by the Mint.

Forms for use in connection with gold sent to the Mint by post or under Police escort can be obtained at the Mint.

Charges for Assaying, Refining, and Coinage.

Gross Weight of Deposit in ounces.	Mint Charge.	Gross Weight of Deposit in ounces.	Mint Charge.	Gross Weight of Deposit in ounces.	Mint Charge.
Up to and including—	£ s. d.	Up to and including—	£ s. d.	Up to and including—	£ s. d.
24	0 5 0	400	4 3 4	1,300	10 4 2
30	0 6 3	410	4 5 5	1,400	10 16 8
40	0 8 4	420	4 7 6	1,500	11 9 2
50	0 10 5	430	4 9 7	1,600	12 1 8
60	0 12 6	440	4 11 8	1,700	12 14 2
70	0 14 7	450	4 13 9	1,800	13 6 8
80	0 16 8	460	4 15 10	1,900	13 19 2
90	0 18 9	470	4 17 11	2,000	14 11 8
100	1 0 10	480	5 0 0	2,100	15 4 2
110	1 2 11	490	5 2 1	2,200	15 16 8
120	1 5 0	500	5 4 2	2,300	16 9 2
130	1 7 1	520	5 6 8	2,400	17 1 8
140	1 9 2	540	5 9 2	2,500	17 14 2
150	1 11 3	560	5 11 8	2,600	18 6 8
160	1 13 4	580	5 14 2	2,700	18 19 2
170	1 15 5	600	5 16 8	2,800	19 11 8
180	1 17 6	620	5 19 2	2,900	20 4 2
190	1 19 7	640	6 1 8	3,000	20 16 8
200	2 1 8	660	6 4 2	3,100	21 9 2
210	2 3 9	680	6 6 8	3,200	22 1 8
220	2 5 10	700	6 9 2	3,300	22 14 2
230	2 7 11	720	6 11 8	3,400	23 6 8
240	2 10 0	740	6 14 2	3,500	23 19 2
250	2 12 1	760	6 16 8	3,600	24 11 8
260	2 14 2	780	6 19 2	3,700	25 4 2
270	2 16 3	800	7 1 8	3,800	25 16 8
280	2 18 4	820	7 4 2	3,900	26 9 2
290	3 0 5	840	7 6 8	4,000	27 1 8
300	3 2 6	860	7 9 2	4,100	27 14 2
310	3 4 7	880	7 11 8	4,200	28 6 8
320	3 6 8	900	7 14 2	4,300	28 19 2
330	3 8 9	920	7 16 8	4,400	29 11 8
340	3 10 10	940	7 19 2	4,500	30 4 2
350	3 12 11	960	8 1 8	4,600	30 16 8
360	3 15 0	980	8 4 2	4,700	31 9 2
370	3 17 1	1,000	8 6 8	4,800	32 1 8
380	3 19 2	1,100	8 19 2	4,900	32 14 2
390	4 1 3	1,200	9 11 8	5,000	33 6 8

For every additional 100ozs. the charge is increased by 12s. 6d.

NOTE.—Additional charges (*see* Regulation No. 6) are collected when base metals in a deposit exceed 2 per cent. of its weight.

The following table illustrates the operation of these charges in case of gold of the value of £3 17s. 10½d. an ounce:—

Weight of Deposit.	Rate of Charge per ounce.	Amount of Charge.	Net Value of Deposit.
ozs.	d.	£ s. d.	£ s. d.
50	2·5	0 10 5	194 3 4
100	2·5	1 0 10	388 6 8
600	2·3	5 16 8	2,330 8 4
1,000	2·0	8 6 8	3,885 8 4
5,000	1·6	33 6 8	19,435 8 4
10,000	1·55	64 11 8	38,872 18 4

NOTE.—A proportion of silver in deposits of gold is paid for by the Mint as follows:—

In deposits under 1,000ozs. gross: all silver in excess of 8 per cent. of the weight of the deposit after melting.
„ from 1,000 „ to 5,000 „ „ 6 „ „ „ „
„ „ 5,000 „ „ 10,000 „ „ 5 „ „ „ „
„ „ 10,000 „ upwards „ „ 4 „ „ „ „

The rate at which payment for silver is made is liable to fluctuation.

GOLD ESCORT SERVICE.

RATES.

Actual Cost, plus 20 per cent.

RATES FOR CARRIAGE OF GOLD ON GOVERNMENT RAILWAYS.

	Distance not over—							
	25 miles.	50 miles.	100 miles.	150 miles.	200 miles.	250 miles.	300 miles.	350 miles.
Gold dust and bullion per 100ozs. ...	s. d. 1 0	s. d. 2 0	s. d. 3 0	s. d. 3 9	s. d. 4 6	s. d. 5 0	s. d. 5 6	s. d. 6 0

6d. per 100ozs. for every additional 50 miles, or part thereof.

NOTE.—A special reduction of 25 per cent. is made for all gold dust or bullion consigned to the Perth Mint.

To find the value per ounce of gold sent from a mine to the Mint.—Divide the standard gold by the weight before melting, and multiply the result by £3 17s. 10½d. For instance, supposing the Mint return to show:—

	Ozs.
Weight before melting	47·41
Standard gold	38·19

The calculation would be as follows:—

```
4741)3819·0(·805
3792·8
-------
 26200
 23705
 -----
  2495
  ----
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·805 × £3 17s. 10½d. =
·805 × £3·894
·805

19470
311520

£3·134(670)
20
---
s. 2·680
12
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d. 8·160 = £3 2s. 8d., value per ounce of gold as produced from the mine.

By Authority. FRED. WM. SIMPSON, Controller of Printing, Perth.