

SOUTH AUSTRALIA.

ANNUAL REPORT

OF THE

DIRECTOR OF MINES

AND

GOVERNMENT GEOLOGIST

FOR

1924.

ADELAIDE:

BY AUTHORITY: R. E. E. ROGERS, GOVERNMENT PRINTER, NORTH TERRACE.

1925.

ANNUAL REPORT OF THE DIRECTOR OF MINES AND GOVERNMENT GEOLOGIST FOR 1924.

I have the honor to submit for your information the following report on the operations of the Department of Mines of South Australia for the year ended December 31st, 1924:—

STAFF.

After a term of service extending over 54 years, Mr. L. C. E. Gee, Chief Registrar and Recorder, retired from the Public Service at the end of June, 1924. Mr. Gee was closely associated with the development of many mining fields in South Australia and the Northern Territory. His knowledge of the mining laws and their application gave him special qualifications for the position he occupied. The Synopsis of Mining Legislation prepared by Mr. Gee passed through three editions, the last of which summarizes all enactments up to the middle of 1924.

The Department suffered another loss by the resignation of Mr. M. L. Trowbridge, Clerk and Deputy Registrar, after a continuous service of over 13 years, during which he set a fine example of conscientious adherence to duty.

The office of Inspector of Mines and Quarries, rendered vacant by the retirement of Mr. Henry Jones at the end of 1923, was filled by the appointment of Mr. J. L. Pearson, whose experience of mining is wide and varied. He has held responsible posts in Western Australia, Tasmania, and Queensland; and, during recent years, he was in control of mining operations at Wallaroo and Moonta. The Department has been fortunate in obtaining the services of an officer so experienced in modern mining practice.

NEW LEGISLATION.

There was no new enactment by Parliament during 1924, but the whole body of the Regulations under the Mining Acts, 1893-1922, was revised and gazetted. Opportunity was taken to simplify procedure, to remove inconsistencies, and to make some concessions which are necessary under present conditions. The revised Regulations were gazetted on March 27th, 1924. Some minor adjustments were made by amendments gazetted on May 1st, 1924; and a further alteration, providing for the concentration of labor on miscellaneous gypsum leases, was gazetted on July 10th, 1924.

The regulations dealing with the working of mines were gazetted separately under the Mines and Works Inspection Act, No. 1444 of 1920, on March 27th, 1924.

WARDEN'S COURTS.

During the year, the following complaints were filed and set down for hearing in the Warden's Court at various dates, and disposed of in the manner stated:—

Plaint No. 48.—Heard at Adelaide, January 21st, 1924. *F. J. Sheridan v. W. A. Kingsborough.* Claim for the forfeiture of mineral claims Nos. 11679 and 11680, situated near Dome Rock. Verdict for plaintiff, with £6 7s. 6d. costs and Warden's order issued to peg.

Plaint No. 49.—Heard at Adelaide, January 21st, 1924. *Walter Hawker v. M. Kingsborough.* Claim for the forfeiture of mineral claim 11693, situated near Dome Rock. Verdict for plaintiff, and Warden's order issued to peg.

Plaint No. 50.—*T. McD. Hawker v. T. S. Wilson.* Claim for the forfeiture of mineral claims 11741 and 11743, situated near Dome Rock. Consent to judgment herein by defendant. Court proceedings cancelled, and Warden's order issued to peg.

Plaint No. 51.—*J. Fitzsimmons v. T. S. Wilson.* Claim for the forfeiture of mineral claims Nos. 11742 and 11744, situated near Dome Rock. Consent to judgment herein by defendant. Court proceedings cancelled, and Warden's order issued to peg.

Plaint No. 52.—Heard at Adelaide, January 21st, 1924. *W. Hawker v. J. Claffey.* Claim for the forfeiture of mineral claim 11696, situated near Dome Rock. Verdict for plaintiff, and Warden's order issued to peg.

Plaint No. 53.—Heard at Adelaide, January 28th, 1924. *S. H. Sheridan v. W. R. Innes.* Claim for the forfeiture of miscellaneous lease No. 143, situated in the hundred of Warrenben. The decision of the Court was that the lease was liable to forfeiture, with an allowance of £2 17s. costs. Decision of the Court upheld by the Hon. the Minister for Mines, and the lease forfeited in favor of complainant.

Plaint No. 54.—*G. D. Meudell v. B. Miller.* Claim for the forfeiture of oil claims Nos. 504, 505, 506, 502, and 508, situated in the hundred of Santo. Consent to judgment herein by defendant. Court proceedings cancelled, and Warden's order issued to peg.

Plaint No. 55.—*G. D. Meudell v. B. Miller.* Claim for the forfeiture of oil claims Nos. 501, 503, 507, and 509, situated in the hundred of Santo. Consent to judgment herein by defendant. Court proceedings cancelled, and Warden's order issued to peg.

Plaint No. 56.—Heard at Adelaide, February 23rd, 1924. *J. Tennant v. Public Trustee.* Claim for fixing rent and compensation on compulsory mining lease over section 996, hundred of Barossa. Compensation fixed at £9. Rent at £2 per annum.

Plaint No. 57.—*H. T. Smith v. A. E. Copp, sen.* Claim for the forfeiture of mineral claim 11915, situated near Mount Painter. Consent to judgment herein by defendant. Court proceedings cancelled, and Warden's order issued to peg.

Plaint No. 58.—A. E. Hammond v. F. Kempson. Claim for the forfeiture of mineral claim No. 11683, situated near Dome Rock. Consent to judgment herein by defendant. Court proceedings cancelled, and Warden's order issued to peg.

Plaint No. 59.—A. E. Hammond v. T. S. Wilson. Claim for the forfeiture of mineral claim 11569, situated near Dome Rock. Consent to judgment herein by defendant. Court proceedings cancelled, and Warden's order issued to peg.

Plaint No. 60.—J. F. Butler v. W. A. Kingsborough. Claim for the forfeiture of gold section 790, held as mineral claim 11790. Consent to judgment herein by defendant. Court proceedings cancelled, and Warden's order issued to peg.

Plaint No. 61.—Heard at Adelaide on Friday, May 2nd, 1924. F. H. Nicholls v. C. W. Lovell. Claim for the forfeiture of miscellaneous lease No. 156, situated in the hundred of Kevin. The decision of the Court was that the lease was liable to forfeiture, with an allowance of £2 17s. costs. Decision of the Court upheld by the Hon. the Minister of Mines, and lease forfeited in favor of complainant.

Plaint No. 62.—Heard at Adelaide, May 12th, 1924. A. Muston v. Annie O'Brien. Claim for the forfeiture of miscellaneous lease No. 159, situated near Lake MacDonnell, in the hundred of Kevin. The decision of the Court was that the lease was liable to forfeiture, with an allowance of £19 14s. 6d. costs. Decision of the Court upheld by the Hon. the Minister of Mines, and the lease forfeited in favor of complainant.

Plaint No. 63.—Heard at Adelaide, May 12th, 1924. C. W. Lowell v. Annie O'Brien. Claim for the forfeiture of miscellaneous salt lease No. 158, situated in the hundred of Kevin. The decision of the Court was that the lease was liable to forfeiture, with an allowance of £19 4s. 6d. costs. Decision of the Court upheld by the Hon. the Minister of Mines, and the lease declared forfeited in favor of complainant.

Plaint No. 64.—F. L. Macfarlane v. C. W. Lovell. Claim for the forfeiture of miscellaneous leases Nos. 155 and 154, situated in the hundred of Kevin. Consent to judgment herein by defendant. Recommendation for forfeiture approved by the Hon. the Minister of Mines, and the lease forfeited in favor of complainant.

Plaint No. 65.—Heard at Eudunda, August 19th, 1924. L. Geach v. V. Leahy. Claim for the forfeiture of mineral claims Nos. 12005 and 12006, situated in the hundred of Bright. Verdict for plaintiff, with £2 6s. costs. Warden's order issued to peg.

Plaint No. 66.—Heard at Adelaide, September 8th, 1924. F. B. Moulden v. G. Spinks. Claim for the forfeiture of miscellaneous (gypsum) lease No. 165, situated in the hundred of Kevin. The decision of the Court was that miscellaneous (gypsum) lease No. 165 was liable to forfeiture, with an allowance of £50 costs. (Plaints 66 and 67 were heard together, and the costs cover both complaints). Decision of the Court upheld by the Hon. the Minister of Mines, and the lease forfeited in favor of complainant.

Plaint No. 67.—Heard at Adelaide, September 8th, 1924. F. B. Moulden v. G. Spinks. Claim for the forfeiture of miscellaneous (gypsum) lease No. 164, situated in the hundred of Kevin. The decision of the Court was that miscellaneous (gypsum) lease No. 164 was liable to forfeiture, with costs as set out in plaint 66. Decision of the Court upheld by the Hon. the Minister for Mines, and the lease forfeited in favor of the complainant.

Plaint No. 68.—Heard at Copley, October 2nd, 1924. J. D. Lander v. M. McCabe. Claim for the forfeiture of mineral claim No. 9948, situated near Mount Fitton. Verdict for plaintiff, with £4 10s. costs, and Warden's order issued to peg.

Plaint No. 69.—Heard at Adelaide, December 22nd, 1924. A. Muston v. P. S. Bourke. Claim for the forfeiture of miscellaneous (gypsum) lease No. 145, on part section 345w, hundred of Melville. The decision of the Court was that miscellaneous (gypsum) lease No. 145 was liable to forfeiture, with an allowance of £2 17s. costs. Decision of the Court upheld by the Hon. the Minister for Mines, and lease forfeited in favor of complainant.

GEOLOGICAL INVESTIGATIONS DURING 1924.

The following schedule contains a summary of the work on which the geologists were engaged during the period under review:—

(A) INVESTIGATIONS AND REPORTS CONCERNING MINERAL DEPOSITS.

The Government Geologist made a number of visits to localities in which boring operations were in progress, and to places where it was proposed to carry out exploratory work by means of drilling. Thus several inspections were made of areas at Kadina, a number of places along the Murray River between Murray Bridge and Morgan, and at Bower.

The same officer made an inspection of the salt and gypsum deposits at Lake MacDonnell, in connection with proposals for the improvement of transport facilities.

A visit was paid to Tarcoola by the Minister of Mines, who was accompanied by the Government Geologist, in connection with assistance to the miners prospecting for gold in that district.

The Deputy Government Geologist visited the site of a discovery of silver lead ore in the northern part of the Flinders Range. His report is contained in Mining Review No. 39.

This officer visited Iron Knob, at the request of the Broken Hill Proprietary Company, to consult with the management on proposals for the future exploitation of the ore bodies.

The Deputy Government Geologist made a series of inspections of quarries from which clay is obtained, in the course of preparing a bulletin on the clay resources of the State. This work is still in progress.

He led a party of visiting geologists through the salt and gypsum deposits of Yorke Peninsula at the time of the meeting of the Australasian Association for the Advancement of Science.

The Deputy Government Geologist reported also on a deposit of building stone at Birdwood, a supposed find of bituminous coal on the roadside near Burra, and a stone quarry near Adelaide.

This officer prepared departmental reports on proposed bore sites near Mannum and Bower, in connection with the work of prospecting for lignite.

(B) INVESTIGATIONS CONCERNED WITH WATER SUPPLIES.

The Government Geologist made an inspection of country to the north of Fowler's Bay, and made a departmental report on the prospects of obtaining underground water for the use of stock.

This officer prepared a report on recent developments in the exploitation of the underground water resources of the State for the Interstate Artesian Water Conference which met in Perth. He attended the Conference as a representative of South Australia.

The Government Geologist paid a visit to Booleroo Centre and made a departmental report on the question of obtaining a water supply for the hospital and the town from underground sources.

The Deputy Government Geologist visited the north-eastern corner of South Australia, the northern extremity of the Flinders Range and the region to the east of Lake Torrens, and prepared a report on the recent developments in connection with the boring operations in these districts, this report being embodied in Geological Survey, Bulletin No. 11, which has been published.

This officer visited also an area to the west of Lake Gillies, and furnished advice with regard to the selection of sites for bores and wells.

(C) VARIOUS ACTIVITIES.

The services of the Government Geologist were made available to the Commonwealth Government for the purpose of arranging and carrying out a brief tour of Central Australia with a visiting explorer.

Contributions, dealing with underground water and mineral resources, were made by the Government Geologist to the handbook of information prepared for the visitors to Adelaide in connection with the meeting of the Australasian Association for the Advancement of Science.

An account of the coal resources of South Australia was prepared by the Government Geologist for the World Power Congress.

Many departmental reports dealing with problems connected with the administration of the Mining Acts, State aid to mining, and the development of mineral deposits and underground water supplies in various parts of South Australia were prepared by the Government Geologist.

THE INSPECTION OF MINES.

The Chief Inspector of Mines has furnished the following summary report on the work on which he was engaged during the year 1924 :—

During the year visits of inspection were made to mining properties and quarries, reports and plans being furnished in some cases as to the value and prospects, best methods of development, &c.

In all cases the condition of the properties inspected with regard to safety were noted, and, where necessary, instructions were given to have any defects or omissions remedied.

Among the mining properties visited were the following :—

A barytes mine in the hundred of Dutton and the Gordon Reward Mine, Barossa, where a question of obtaining entry on to private property was concerned.

The Wild Dog Mine, at Yelta, where some days were spent in examining and sampling the mine. A report on the mine, with plans, was published in Mining Review No. 39.

The shaft at Hope Valley, which was being put down to open up the lignite deposit, was visited. A further attempt had been made to overcome the obstacle of soft ground, but was not successful, and work has since been stopped. The Broken Hill Associated Smelters at Port Pirie were inspected.

The question of re-working the Talisker Mine near Cape Jervis having arisen, the mine was visited in company with the Inspector of Mines, and a report made.

A small arsenic show near Cape Jervis was inspected later, and a report thereon was published in Mining Review No. 40.

The Wadnaminga district, where there had been a revival of interest in gold mining, was visited, and the Thunder Queen Mine was examined and sampled. A report on the property was furnished, and with plans was published in Mining Review No. 40.

The Golden Record Mine, in the same locality, was also inspected, and the Homeward Bound Mine, near Mannahill, where a little work is being done.

As a demand had arisen for arsenic, attention was turned to some of the known arsenic producing properties in this State, and amongst others the Preamimma Copper Arsenic Mine, near Monarto, was taken up again and unwatered. The mine was examined and sampled, and a report was furnished and plans made, which were published in Mining Review No. 40.

At the same time another arsenic producer near Callington, which was mining and selling arsenic ore, was inspected.

The fine barytes property being worked near Noarlunga was inspected, from which a steady output of very fine quality barytes is being obtained.

A cave deposit of guano, with which was associated some ammonium salts, chloride and sulphates, was examined and sampled. The report on this property, with plans, was published in Mining Review No. 40.

An important deposit of natural ochres, which has been worked for many years, near Beltana, was visited, and the workings examined and sampled. The report, accompanied by plans, will be published in Mining Review No. 41.

The very extensive works of the Broken Hill Proprietary Company at Iron Knob, where the supply of ironstone is quarried for the iron and steel works at Newcastle, New South Wales, were examined, and the slate quarries at Willunga and Mintaro were visited.

In addition, visits were made to various brickworks and many of the stone quarries which form a large and increasing industry in the State.

In general, the observance of the safety regulations is very fair. With regard to injurious dust produced in crushing and milling work, considerable improvements are being made tending to its suppression, the chief difficulty being the inconvenient arrangement of some of the older plants.

FATAL ACCIDENTS.

In the quarrying industry there were four fatalities during the year.

At a quarry in the Mount Gambier district a quarryman was killed by the tilting of a large block of stone on the quarry floor, being crushed against another block.

A fall of clay from a face about 10ft. high at a brickworks at Burnside caused the death of an employee working there at the time.

At the great ironstone quarries at Iron Knob an employee received fatal injuries through a blasting accident. In order to ensure the safe loading of deep holes with explosives, use is made of a copper tube, which is inserted into the hole and through which the explosives are passed. In this case a "bulling" charge was being fired, and after passing the plug containing the lighted fuse and detonator into the hole the loading tube was withdrawn and laid aside. Instruction had been given to look through the tube in every case to see that it was clear, but in this case it was not done, and the exploder plug was withdrawn with the tube and, exploding before being noticed, caused the death of one of the employees standing close to it.

At a large quarry in the Adelaide hills, where heavy masses of stone were being obtained for break-water purposes, an aerial ropeway is used for lifting them out of the quarry. Against instructions, an employee walked under one of these masses while suspended in the air, and was killed by the fall of the stone, due to the shearing of part of the pulley gear. This had apparently been weakened by severe stresses due to the dragging of the large masses of stone over the quarry floor.

A fatal accident occurred at the Wallaroo Mines (in liquidation) during the dismantling of some surface plant. An employee slipped from a stage about 6ft. high and sustained injuries which finally resulted in his death.

At the large lead smelting and refining works at Port Pirie an employee was crushed between a skip and a post of the building, death ensuing in consequence; and another employee died as the result of heart failure accelerated by electric shock.

The following work was carried out by the Inspector of Mines and Quarries between the time of his appointment in March and the end of 1924:—

In connection with the mines, quarries, and plants which come under the provisions of the Mines and Works Inspection Act; in conjunction with the Chief Inspector of Mines, a systematic inspection has been maintained of all the more important operations including:—

The principal metal and building stone quarries and stone crushing mills.

The quarries connected with the cement making plants and a number of the leading brickworks.

The Broken Hill Proprietary Company's Whyalla and Iron Knob plant, and the extensive workings on the Iron Monarch and Iron Knob deposits of iron ore.

The Broken Hill Associated Smelters at Port Pirie.

The Wild Dog Mine, near Moonta.

Attention was also given to a number of smaller quarrying properties in various parts of the State.

A visit was made to the Deloraine district, and the progress at the properties in operation noted.

The Pearce's Find Gold Mine, situated near Williamstown, was examined and sampled; also an occurrence of felspar in the same district, and particulars with regard to both properties are embodied in reports printed in Mining Review No. 39.

Departmental reports were furnished regarding the operating of the Cementation Plant at Moonta Mines and working conditions at the Smelters, Port Pirie.

Special investigations were made respecting fatal accidents at the Broken Hill Associated Smelters, Port Pirie; Adelaide quarries; Sleep's Hill; and at Wallaroo Mines. Departmental reports were made in each case detailing the results of the inquiry.

STATE BATTERIES AND CYANIDE WORKS.

The following report on the operations of the State batteries and cyanide works has been furnished by the General Manager:—

During the year ended December 31st, 1924, work has proceeded as usual at the Government batteries and cyanide works. This work consists of the treatment of ore by battery, the treatment of tailings by the cyanide process, and the testing and assaying of small parcels for the prospector not included as parcels.

In the period referred to 36 parcels of ore were treated, the total weight being 615 tons 3cwt. for a return of 892ozs. 12dwts. 5grs. of gold bullion, valued at £3,149 18s. 1d.

In the course of the year 250 assays and pan tests of small parcels of ore of a few pounds' weight and ore and tailings under treatment were made. The total weight of tailings treated by the cyanide process amounted to 681 tons. Of the total bullion recovered, 689ozs. 0dwts. 23grs., valued at £2,360 18s. 9d., were recovered by amalgamation, and 124ozs. 16dwts. 17grs., valued at £499 7s., were recovered by the cyanide process. The average value per ton of ore treated for the 12 months was £4 13s. 1d.

The work carried out at State batteries and cyanide works during the year has, in addition to the testing of small parcels for the prospector, enabled a return to be made to the prospector of £2,662 17s. 3d. as proceeds on the treatment of the various parcels of ore.

During the period under review the department has received from the Gold Producers' Association two half-yearly premiums of 7s. 5d. and 1s. respectively per ounce of standard gold, and this amount, not included in any foregoing figures, has been paid over in full to those having parcels treated at State batteries and cyanide works.

The total value of gold bullion recovered to date at State Batteries and cyanide works is £103,169 0s. 9d.

GOVERNMENT DRILLING OPERATIONS.

A diamond drill was kept continuously at work throughout the period under review in the Kadina district, prospecting for the downward and longitudinal extensions of the lode worked at Stirling West shaft. Altogether 1,612ft. of boring were completed by working this drill for one shift only. The results of the boring operations are summarized in Mining Reviews 40 and 41.

Boring for lignite was carried out with rotary drills of the calyx type at Bower, Mannum, Morgan, and Mallala.

At Bower 1,785ft. 6in. were drilled in boreholes numbered 3 to 6 of that series.

At Mannum 582ft. 6in. were drilled in boreholes numbered 1 and 2 of that series.

At Morgan 644ft. were drilled by the first borehole of a new series.

At Mallala one borehole, 543ft. deep, was drilled.

The results of these boring operations are set out in Mining Reviews 40 and 41.

The work of testing the sites for piers of the new railway bridges over the River Murray, at Murray Bridge and Paringa, was completed for the Railways Commissioners. At Murray Bridge 720ft. of boring were done on the swamp and 705ft. 2in. in the river.

At Paringa the total amount of drilling completed was 551ft. 2in.

Another borehole, 100ft. deep, was drilled at Port Pirie to test foundations for the Railways Commissioners.

The total amount of boring completed by the several drills, at all the localities mentioned, was 7,240ft. 4in. during the year 1924.

THE MINERAL PRODUCTION OF SOUTH AUSTRALIA TO THE END OF 1924.

The sources of the minerals produced within the State during 1924 are shown in the tabular statement published with this report. When the value of these products is added to that recorded since the foundation of South Australia, and the principal mineral products are segregated from the annual totals, it will be found that the most important contributions are made by the following:—

	Value of Total Production, 1840-1924, £
Copper	32,988,957
Iron	4,056,972
Salt	1,749,813
Gold	1,612,630
Silver and lead	378,731
Gypsum	341,030
Limestone	330,545
Phosphate rock	127,976
Manganese	92,330
Opal	72,425
Other minerals	371,802
Total to end of 1924	£42,123,211

In order that the progress of the industry may be studied readily as a whole, a graph has been prepared for this report. The statistics of production, recently revised with the active co-operation of the Government Statist, are embodied in this graph. The statistics are compiled annually at the close of each calendar year, and the full black column, centred above each year in the graph, represents the total production for the State during the period January-December of the year indicated. The contributions of the two chief minerals (copper and iron) towards the total for each year are shown on each side of the central black column, the value of the copper being indicated by a shaded and that of the iron by an open column. Notes in the body of the graph serve to draw attention to salient events in the history of South Australian mining, and to influences that have affected production.

SOUTH AUSTRALIA.—GEOGRAPHICAL DISTRIBUTION OF MINERAL PRODUCTION FOR THE YEAR 1924.

Division and County.	Value of Mineral Production for 1924.	Details of Production.
I. Central—	£	
Adelaide	17,591	Gold, £708; barytes, £5,664; soap stone, £250; clay, £420; limestone, £10,044; ochre, £270; flint pebbles, £235.
Carnarvon	15,034	Salt, £15,034
Eyre		
Fergusson	112,985	Limestone, £27,991; salt, £52,956; gypsum, £32,038.
Gawler	624	Limestone, £210; salt, £405.
Hindmarsh	48	Arsenic ore, £48.
Light	478	Gold, £361; phosphate, £117.
Sturt	496	Arsenic ore, £496.
Total	£147,256	

**SOUTH AUSTRALIA.—GEOGRAPHICAL DISTRIBUTION OF MINERAL PRODUCTION FOR THE
YEAR 1924—continued.**

Division and County.	Value of Mineral Production for 1924.	Details of Production.
II. Lower North—	£	
Burra	380	Magnesite, £300; asbestos, £80.
Daly	58,505	Copper, £26,046; gypsum, £88; salt, £32,371.
Kimberley	—	—
Stanley	—	—
Victoria	—	—
Total	£58,885	
III. Upper North—		
Blachford	—	—
Dalhousie	—	—
Derby	191	Silver lead, £191.
Frome	23	Magnesite, £23.
Granville	—	—
Hanson	—	—
Herbert	—	—
Lytton	—	—
Newcastle	—	—
Taunton	—	—
Total	£214	
IV. South-Eastern—		
Buckingham	—	—
Cardwell	—	—
Grey	1,130	Flint pebbles, £1,130.
MacDonnell	—	—
Robe	—	—
Total	£1,130	
V. Western—		
Bosanquet	—	—
Buxton	—	—
Dufferin	—	—
Flinders	750	Talc, £750.
Hopetoun	—	—
Jervois	182	Silver lead, £182.
Kintore	27,779	Salt, £2,596; gypsum, £25,183.
Le Hunte	—	—
Manchester	696,753	Iron ore, £667,354; clay, £16; salt, £29,383.
Musgrave	—	—
Robinson	—	—
Way	—	—
York	—	—
Total	£725,464	
VI. Murray-Mallee—		
Albert	25	Gypsum, £25.
Alfred	145	Gypsum, £145.
Buccleuch	—	—
Chandos	—	—
Hamley	—	—
Russell	—	—
Young	—	—
Total	£170.	
Outside Counties—		
Northern	3,570	Ochre, £3,570.
North-Eastern	107	Gold, £107.
North-Western	16,248	Gold, £2,369; manganese, £1,128; barytes, £30; ochre, £420; opal, £4,000; salt, £8,301.
Western	194	Gold, £194.
Total	£20,119	

Total value of mineral production for the State, £953,238.

In conclusion, I have to acknowledge the loyal and enthusiastic help of the officers of the department in the performance of those duties to which special reference is made in this report, and of other departmental work that is carried out continuously for the benefit of the mining industry.

I have, &c.,

L. KEITH WARD,

Director of Mines, Government Geologist, and Secretary to the Minister of Mines.

To the Honorable the Minister of Mines.

GRAPH

Value of total annual production in £

