

1959
WESTERN AUSTRALIA

REPORT
OF THE
GEOLOGICAL SURVEY BRANCH
FOR THE
YEAR 1957

EXTRACT FROM THE REPORT OF THE DEPARTMENT OF MINES

DIVISION IV

Annual Progress Report of the Geological Survey Branch of the Mines Department for the Year 1957

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REPORTS

The following reports were prepared during the year for ultimate publication as one of a Miscellaneous Bulletin Series:—

- Water Potentialities in the Yoganup District (South-West Division).
- Report on Water Supply, Bamboo Creek Mining Centre, Pilbara Goldfield, W.A.
- Report on a Geological Reconnaissance of a Greenstone Belt extending from Jackson in the Yilgarn Goldfield to Ryan's Find in the Coolgardie Goldfield.
- The Search for Oil in Western Australia in 1957.
- Report on the Industrial Rocks and Minerals of the Esperance Area.
- Summary Report on some Manganese Deposits in the Pilbara and West Pilbara Goldfields.
- Report on Radioactivity at Mt. Mulgine, Yalgoo Goldfield.
- Report on Beach Sand Heavy Mineral Deposit on P.A.'s 1013H, 1016H, and 1017H, Mosman Beach.
- Summary Report on the Principal Beach Sand Heavy Mineral Deposits, South-West Division, Western Australia.
- Report on Iron Deposit 9.5 miles North-North-East of Collie, W.A.
- Some Notes on Underground Water in the Sand Patch Area, Albany.
- Report on a Gold Find on P.A.389PP, Lake Grace.
- Report on an Examination of an Alleged Copper Deposit, 3 miles South-South-East of Yornup, South-West Division.
- Notes on the Occurrence of the "Toodyay Building Stone," Toodyay District, South-West Division.
- Summary Progress Report on Reconnaissance Survey of Portion of the Pilbara Goldfield.
- Notes on the Geology of the Copper Hills Area, Pilbara Goldfield, W.A.
- Report on Heavy Mineral Concentrations on D.C.66H, Wilson's Inlet, South-West Division.
- Report on the Occurrence of Prase, M.C.29, 4 miles South of Spargoville, Coolgardie Goldfield.
- Report on Groundwater Conditions of the Country to the North and East of Lake Allanooka, South-West Division, W.A.
- Notes on the Occurrence of Iron Ore at Tallering Peak, Yalgoo Goldfield.
- Notes on the Occurrence of a Phosphatic Limestone on Location 1996 near Ruabon Siding, South-West Land Division, W.A.

CONTENTS—continued

Reports—continued.

Report on the Availability of Agricultural Lime South of Northcliffe, South-West Land Division.

Report on Subsidised Diamond Drilling "Blue Spec" Leases, Nullagine District, Pilbara Goldfield, W.A.

Exploratory Diamond Drilling for Gold, Bamboo Creek, Pilbara Goldfield.

Summary Report—

D.D.H. No. 16—Site B14, "South Perseverance."

D.D.H. No. 17—Site B15, "Kitchener."

D.D.H. No. 18—Site B11, "South Perseverance."

D.D.H. No. 19—Site B10, "Kitchener."

Report on Diamond Drilling on G.M.L. 1356, "Waroonga Extended South," Agnew, East Murchison Goldfield, W.A.

Report on Drilling for Gold on the New Alliance Leases, Burnakura Centre, Murchison Goldfield.

Report on Diamond Drilling of "Great Fingal" Quartz Reef in Depth.

Diamond Drilling of Abandoned Gold Shows—

D.D.H. No. M.9—Site D1, G.M.L. 2241, "Eaglehawk" G.M., Eelya, Murchison Goldfield.

D.D.H. No. V.V.1—Site A, G.M.L.'s 5673, 5806, "Westralia and East Extensions" Goldmine, Bonnievale, Coolgardie Goldfield.

D.D.H. No. E.M.1—Site A1, "Oroya Black Range" Gold Mine, Sandstone, East Murchison Goldfield.

D.D.H. No. E.M.2—Site B1, "Oroya Black Range" Gold Mine, Sandstone, East Murchison Goldfield.

D.D.H. No. K.1—Site A, "White Feather Main Reefs, Ltd." Gold Mine, Kanowna, North-East Coolgardie Goldfield.

D.D.H. No. K.2—Site B, "White Feather Main Reefs, Ltd." Gold Mine, Kanowna, North-East Coolgardie Goldfield.

NOTE.—Owing to a change in the Mines Department's publication policy, the reports listed above do not appear with this Annual Report. The arrangement is that they will appear as a Geological Survey bulletin under the title of "Miscellaneous Bulletin."

DIVISION IV

Annual Progress Report of the Geological Survey Branch of the Mines Department for the year 1957

Under Secretary for Mines,

I submit herewith, for the information of the Honourable the Minister for Mines, my report on the activities of the Geological Survey for the year ended 31st December, 1957.

STAFF

Staff members as at 31st December, 1957 were as follows:—

Professional.

Ellis, H. A., B.Sc., A.O.S.M. (N.Z.)	Government Geologist	} 10
Berliat, K., D.Sc. (Switzerland)	Senior Geologist	
Sofoulis, J., B.Sc. (W.A.)	Geologist, Grade 1	
de la Hunty, L. E., B.Sc. (W.A.)	Do.	
Low, G. H., B.Sc. (W.A.)	Do.	
Noldart, A. J., B.Sc. (Syd.)	Do.	
Duggan, J. W., B.Sc. (W.A.)	Geologist, Grade 2	
Wyatt, J. D., B.A. (W.A.)	Do.	
Connolly, R. R.	Do.	
Bartram, G. D., B.Sc. (W.A.)	Do.	

Clerical.

White, S. V. G.	Typist	} 3
Rasmussen, R. F.	Clerk	
Potts, H. G.	Junior Clerk	

Laboratory.

Fimmell, L. H.	Laboratory Technician	1
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Promotions, Resignations, Appointments

Mr. R. R. Connolly was promoted to the Professional Staff as Geologist Grade 2 on 5th January, 1957 following the completion of a two year training period.

Mr. E. J. Samuel was successful in his application for a transfer to head office, and ceased duty with this branch on 7th June, 1957.

Mr. T. J. Martin, clerk to the Survey for several years, died on 23rd July, 1957.

Mr. G. D. Bartram joined the Professional Staff as Geologist Grade 2 on 14th January, 1957.

Mr. R. F. Rasmussen was appointed to the position of clerk on 22nd November, 1957 on transfer from the Mining Registrar's office, Marble Bar.

Mr. H. G. Potts commenced duties as a junior clerk on 4th June, replacing Mr. Samuel.

PROFESSIONAL STAFF

The approved establishment for professional officers as at 31st December, 1957, is as follows:—

Position.	Occupant.
Government Geologist	H. A. Ellis.
Senior Geologist	K. Berliat.
Geologist, Grade 1	J. Sofoulis.
Do.	L. E. de la Hunty.
Do.	G. H. Low.
Do.	A. J. Noldart.
Geologist, Grade 2	J. W. Duggan.
Do.	J. D. Wyatt.
Do.	R. R. Connolly.
Do.	G. D. Bartram.
Do.	Vacant.
Do.	Vacant.

The two vacant Grade 2 positions were created late in the year to supply the needs of a newly organised Hydrological Section of the Geological Survey, but despite Australia-wide advertisement for applicants no suitable persons applied.

The widely scattered nature of the localities in which our professional services were required during the year necessitated a vast amount of travelling, and the year's work was hard on both vehicles and personnel.

For the greater part of the year, and for the first time in many years, the authorised establishment was up to full strength.

The following tabulated statement shows the relation between the area of the State and the availability of geologists during the year:—

Period.	No. of Geologists available including Government Geologist.	Area of State (sq. miles).	Square Miles per Geologist.	Population of State.
Jan.-Dec., 1957.	10	975,920	97,592	691,882

Activities of Professional Officers

H. A. Ellis, Government Geologist.

In addition to head-office duties, resumed April 1st after three months long service leave, I attended a Conference of State and Commonwealth Government Geologists in Sydney towards the end of May. In July a visit was made to the Field Party operating in the Marble Bar District, and a reconnaissance carried out in the sedimentary basin between Port Hedland and Broome.

K. Berliat, Senior Geologist.

January-March.—Acting Government Geologist.
April.—Office duties, Iron Ore Survey of the State.

May.—Drilling Supervision, Sandstone.
June.—Office duties, Iron Ore Survey of the State.

July.—Bungalbin Iron Ore Investigation.
August-October.—Iron Ore Investigations, Peak Hill, Pilbara, West Pilbara, Ashburton, Gascoyne and Murchison Goldfields.

November-December.—Water Supply South-West Division and Menzies District. Office work relative to formation of Hydrological Section. Annual Leave.

J. Sofoulis, Geologist, Grade 1.

January-February.—Long service leave and report writing.

March-May.—Drilling supervision Bamboo Creek and Copper Investigations, Pilbara and West Pilbara Goldfields.

June-July.—Report writing.
July-September.—Iron Reconnaissance, North-West Districts, in conjunction with Dr. Berliat.

October-December.—Drilling supervision Bur-nakura; Iron Ore Reconnaissance Jackson-Bungalbin-Ryan's Find areas.

L. E. de la Hunty, Geologist, Grade 1.

January-March.—Long Service Leave.
April.—Report writing.

May.—Reconnaissance survey in Esperance area. Core-logging at Day Dawn.
 June.—Laying out drill sites at Agnew.
 July.—Core-logging at Kanowna. Drill supervision at Agnew.
 August.—Drill supervision at Agnew. Inspections of gold, water and manganese.
 September.—Inspection of Mineral Claims for Manganese in Pilbara, West Pilbara, and Peak Hill Goldfields.
 October.—Annual Leave and report writing.
 November.—Report writing.
 December.—Investigation of radioactivity at Mt. Mulgine.

G. H. Low, Geologist, Grade 1.

January.—Beach Sands Survey, South-West and South Coasts. Reports on Oil Search in W.A.
 February.—Completion of Abba River Drilling Reports, and Drafting Work Part 2, Bulletin 105.
 March.—Mosman Beach Sand Investigation.
 April-December.—Supervision of Diamond Drilling at Bamboo Creek. Preliminary work on Tectonic Map of W.A.
 July.—Investigation of Iron Ore at Collie, and Water Supply at Albany.
 August-December.—Supervision of Diamond Drilling at Burnakura.
 September.—Investigation of gold find at Lake Grace, and copper at Yornup.
 October.—Kalgoorlie visit associated with gold ore investigation. Report on Toodyay building stone.

A. J. Noldart, Geologist, Grade 1.

January-February.—Annual Progress Report Pilbara Goldfield Regional Survey. (Stage I, Marble Bar 4 mile to 1 inch sheet.).
 February-April.—Compilation of structure maps and preparations Stage 2. Pilbara Goldfield Regional Survey (Nullagine 4 mile to 1 inch sheet).
 May-September.—Field work Pilbara Goldfield Regional Survey.
 October-December.—Compilation and correlation of field maps and preparation of Bulletin data.

J. W. Duggan, Geologist, Grade 2.

January-December.—Diamond Drilling supervision at Day Dawn, Bonnievale, Sandstone, Peak Hill, Kanowna, and Mount Morgans. Annual leave in September.

J. D. Wyatt, Geologist, Grade 2.

January.—Office duties.
 February.—Clay survey, Maylands Aerodrome.
 March.—Beach Sand Investigations, Mosman Park.
 April.—Office duties.
 May-October.—Regional Survey, Marble Bar Area.
 November.—Office duties.
 December.—Lime Sands, Northcliffe Area.

R. R. Connolly, Geologist, Grade 2.

January-June.—Miscellaneous mineral investigations and inspections.
 July-November.—Temporarily transferred to clerk's position pending replacement for Mr. Martin (deceased).
 November-December.—Miscellaneous investigations.

G. D. Bartram, Geologist, Grade 2.

January.—Appointed. Office duties.
 February-April.—Office duties and miscellaneous field work including clay drilling Maylands, copper shows Northampton, gold drilling Peak Hill.
 May-October.—Pilbara Regional Survey field work.
 October-December.—Office duties and miscellaneous field work, including Capel water supply, Leonora water supply.

FIELD WORK.

Major Field Work Completed During the Year and in Progress as at 31st December, 1957.

- (1) Pilbara Goldfield Regional Survey completed.
- (2) Completion of deep diamond drilling at Kanowna, Sandstone and Coolgardie.
- (3) Completion of extensive Exploratory Diamond Drilling at "Blue Spec"—Nullagine District.
- (4) Completion of Underground Exploratory Drilling on the "Comet" Gold Mine, Marble Bar.
- (5) Continuation of Exploratory Diamond Drilling at Bamboo Creek Centre, Pilbara Goldfield.
- (6) Continuation of Exploratory Diamond Drilling of abandoned gold mines at Agnew, Burnakura and Mt. Morgans.
- (7) Continuation of Iron Ore Survey of the State.
- (8) Continuation of Copper Reserves Survey of the State.
- (9) Continuation of Manganese-Chromite Survey of the State.
- (10) Continuation of the Deep Diamond Drilling Programme on the "Great Fingall" reef at Day Dawn.
- (11) Diamond Drilling at Peak Hill, Peak Hill Goldfield.

Field Work Planned for 1958:

- (1) Supervision of Diamond Drilling at Bamboo Creek, Day Dawn, Mt. Morgans and any other operations arising out of the £ for £ subsidised Diamond Drilling Scheme.
- (2) Commencement of geological work and supervision of water-boring in connection with the just established Water Drilling Section of the Mines Department and the Hydrological Section of the Geological Survey.
- (3) Continuation of Iron Ore Survey, Manganese and Chromite and Copper Surveys.

TRANSPORT.

Tabulated details of transport at present in use by the Geological Survey are as follows:—

Vehicle W.A.G.	Make and Type	Load cwt.	Mileage as at 31/12/57	Mileage for 1957	Date Vehicle Purchased	Remarks
909	Willys Jeep	5	42,665	6,025	1953 (new)	
1194	Ford Utility	15	104,929	1,361	1946 (new)	Disposed of 3/4/57.
2044	Dodge Utility	18	70,210	9,189	1950 (new)	
2393	International Utility	14	97,957	21,437	1950 (new)	
2412	do. do.	14	93,852	11,018	1950 (new)	
2608	do. do.	14	73,775	11,562	1951 (new)	Damaged. Disposed of 13/11/57.
3135	Fargo Utility	15	45,140	8,402	1954 (new)	
3535	Land Rover Utility	10	37,280	14,197	1955 (new)	
3678	Dodge Utility	15	24,028	7,554	1955 (new)	
3876	Land Rover Utility	10	20,944	11,544	1956 (new)	
4475	do. do.	10	6,515	6,515	1957 (new)	Purchased 28/6/57.
4559	do. do.	10	3,497	3,497	1957 (new)	Purchased 12/9/57.
4691	International Utility	20	388	350	1957 (new)	Purchased 17/12/57.

Total miles, 112,751.

Heavy toll was taken of our vehicles in travelling the long distances involved in the supervision of diamond drilling, and in negotiating the rugged country in the Pilbara Goldfield regional survey. Maintenance costs for the year were very high.

SERVICE TO THE GENERAL PUBLIC, MINING INTERESTS AND GOVERNMENT DEPARTMENTS.

This Branch continues to render an extensive service under this heading in the form of consultations, written reports, making publications available and field examinations. The lag in publication of our reports is frequently a serious handicap to our efficiency in this respect.

Hydrological Section.

Ministerial approval was given towards the end of the year for the formation within the Geological Survey Branch of a special section whose work would be confined to underground water exploration. Two Ruston-Bucyrus water boring percussion plants were added to the equipment of the Mines Department's Drilling Section, and early in 1958 exploratory boring will take place in the Hill River Area on partially developed agricultural lands, privately owned. It is anticipated that the activities of this section will gradually expand until underground water is recognised as being of high priority in the economy of the State. Suitable additional staff have not been available, and the additional work will be carried by existing staff.

ACTIVITIES OF THE COMMONWEALTH BUREAU OF MINERAL RESOURCES.

The principal activity of the Bureau during 1957 was the continuation of the Canning Basin Regional Geological Survey commenced several

years ago and in which a helicopter was used for the first time in Western Australia on geological work. Airborne magnetometer and scintillometer traverses were made in the Carnarvon and Eastern Goldfields localities, and in conjunction with an officer from the Geological Survey of Western Australia, an examination was made of current manganese reserves in the Pilbara and other northern districts.

PUBLICATIONS.

Issued during 1957.

Annual Progress Report of the Geological Survey of Western Australia for the year 1954—Administrative Section only.

In the Press.

Geological Sketch Map of Western Australia—1956. Scale 1 inch = 40 miles—one sheet. Bulletin 109—Miscellaneous Bulletin—contains reports for 1954.

Bulletin 110—The Geology of the Phillips River Goldfield, W.A., by J. Sofoulis, B.Sc.

Bulletin 111—The Exploratory Diamond Drilling of the Koolyanobbing Iron Ore Deposits for Pyrite, by H. A. Ellis, B.Sc., A.O.S.M.

Bulletin 105—The Collie Mineral Field, Part 2, by G. H. Low, B.Sc.

Mineral Resources Series—Bulletin No. 6—Gypsum in W.A., by L. E. de la Hunty, B.Sc., and G. H. Low, B.Sc.

Compiled and Awaiting Authority to Print.

Reports for 1955, 1956 and 1957—previously published with this Annual Report up to 1953 inclusive.

H. A. ELLIS,
Government Geologist.