

"Mr. Acton then showed me the site where he wished to make a trial boring at the junction of the Whitewater and Hutt Rivers at the crossing of the track from Lynton, opposite the north end of Loc. 1500. There are here massive beds of ferruginous sandstone, which dip to the west about 2 degrees, and these are overlaid by coastal limestone a few chains westerly. I could not find any fossil remains in the beds and the only specimens that Mr. Acton had found proved to be only circular ferruginous concretions. The strata are evidently of Jurassic age and are not likely to contain coal beds."

*Cookernup Water Supply.*

"I have to report that I visited Cookernup and saw Mr. A. L. Cunnold, the Secretary of the Farmers' Association, who showed me the site suggested by the Association for the test bore; it is on the west side of the Railway adjoining the railway crossing and is Crown land. Mr. Cunnold said that the Association have applied to have this block made a camping reserve for the convenience of settlers out west, so that if any water was struck it would be of public benefit as that obtained by wells is not good, and he represented that if artesian water was obtained at a reasonable depth it would encourage the settlers generally to put down bores. The site is marked on the accompanying litho of the townsite.

"The nearest indication of gneissic rock is one and a quarter miles easterly from the site, and it is probably about 30 feet higher, a steady rise occurring eastward of the township boundary. The strata hereabouts consist of a very stiff clay with ferruginous seams or patches. The probabilities of obtaining artesian water are fair and a supply would be of considerable value to the district. I can therefore commend the proposal."

*Capel Water Supply.*

"I have to report that I visited Capel and inspected the geological conditions of the site of the proposed bore and also of the locality generally. The site suggested is on the edge of the coastal limestone (8580) and the nearest granite occurs about seventeen miles easterly. The intervening country is flattish for six miles and is composed of clays and argillaceous sandstone, there are then hills of sandstone and clay, capped extensively with ironstone gravel and laterite.

"Basalt has been found to occur in the bed of the Capel River at Boronia Bridge, six miles south-easterly from Capel (8579). There appear to be several reported outcrops of this rock, viz., at Blackwood River, two miles from St. John's Brook and at Black Point on the South Coast; these are all approximately in a due south direction from Bunbury where the basalt can be seen on the sea-coast. There does not however appear to be any probability of this rock occurring at Capel.

The conditions appear to be favourable for obtaining an artesian supply of water here.

In regard to the position of the site, I do not think that there would be any objection as far as the probable flow is concerned if a higher site was chosen, as this one would be only a few feet above the bed of the river."

*Proposed Boring for Artesian Water and Coal at Serpentine.*

"I have visited the blocks of land numbered 468/72 at Serpentine, referred to by Mr. C. J. R. Le Mesurier in his letter of the 5th August. They are situated

three miles south of the Railway Station between the Perth-Bunbury road and the railway line. The foot of the Darling Range is here a quarter of a mile east of the road; this is the boundary of the gneiss rock.

"The ground is flattish and is formed of clayey and sandy strata, with a covering of ironstone gravel and laterite in places. The north end of the blocks is watered by the Two-mile Brook and the south end by the Three-mile Brook, which however do not run throughout the year. There are shallow wells in the neighbourhood having subsoil soakage. I could not hear of any well near that had been sunk to 100 feet, but I have found since that it is situated about three miles to the south.

"The specimens submitted to the Department consist of:—

- (a) a ferruginous clayey conglomerate,
- (b) friable grey sandstone, and
- (c) loose particles from a bed at the bottom of the well.

"These contain a few fragments of lignite about the size of a pin's head and a few larger particles of a ferruginous cement.

"Since returning to Perth, Mr. Le Mesurier has called on me and stated that he has given up the idea of boring here and that he has applied more recently for a prospecting area on Crown lands, two miles south of Keysbrook or four miles further south than the former place.

"I consider both sites to be too near the range for successful sinking for artesian water and the strata to be too porous for the existence of coal seams."

*Reported Gold Find near Highbury, Narrogin.*

"In accordance with instructions I visited the site of the reported find of gold, five miles south of Highbury, which is on Loc. 5592 belonging to Mr. George Syme and is marked on Lands Department litho, 385/40D, and specimens showing gold are said to have been picked up on the ploughed field but no reef has been found. Two trenches have been made in the direction of 21 degrees (magnetic) about two chains apart; the western one is about 5 chains long and about 1 foot deep with several deeper parts, in decomposed granite sand and ironstone gravel. The eastern one is 2 chains long and about 3 feet deep with a cross trench about 15 feet long; there are here a few blocks of pegmatite apparently from a vein about 9 inches thick. Granite outcrops a few chains to the south, the joints trending 256 degrees. I did not see any auriferous quartz.

"I saw Mr. George Syme on my way back who said he had no specimens as they had all been given away but that he intended to resume prospecting in about 2 months. Police Constable Crowe had a small sample said to have been found here which is a ferruginous quartz showing gold. Although it is not impossible for the samples to have been found in this locality, I can only say that I did not see any similar quartz there.

"I also visited Loc. 2456 about 1½ miles to the north of Syme's, where there is a large white quartz reef about 20 feet wide trending in the direction of 251 degrees, which is about the same as the jointing of the granite, and underlying about 45 degrees to the east. A sample has been assayed in the Laboratory (L. 1733) but no gold was found."

During the year Mr. Campbell was engaged for 180 days in the field.

C. G. GIBSON, Assistant Geologist.—The following is a summary of the work performed by this officer during the year:—

During January he was at the Head Office employed upon his *Bonnievale Report*\* whilst in the early part of February he revisited the Youanme district with the object of obtaining further information. He returned about the middle of the month and from that time onwards until April 6th he was engaged in the preparation of his report upon Berrigrin and the Black Range District.\*

He then proceeded to the Murchison Goldfield making an examination of Errolls, Barrambie, and Gum Creek upon his way to Wiluna in the East Murchison Goldfield,† from which District he returned upon June 23rd, and from that date was engaged upon his report until August 24th when he started for Kanowna in order to examine the country passed over by the Trans-Continental Railway Survey, from which expedition he returned upon December 4th.

During the year Mr. Gibson has been 192 days in the field.

H. W. B. TALBOT, Topographical Surveyor.—This officer returned to Perth from Ravensthorpe, where he had been carrying out a topographical survey, upon January 20th, leaving again on February 17th for Collie with the object of surveying the supposed new coal field which work occupied him until the 23rd, but he returned again with me upon March 4th for two days.

Upon March 30th he left Perth for Ravensthorpe in order to assist me in the preparation of the Geological Map of the district, which work occupied him until June 29th.

After completing the necessary plan drawing he took his annual leave and then started for Wiluna upon August 25th in order to accompany the Canning Expedition in the capacity of geologist, upon which work he is still engaged.

During the year Mr. Talbot has been engaged for 248 days in the field.

L. GLAUERT, Palæontologist.—This officer was temporarily engaged upon July 1st to assist in the arrangement of the Museum, upon which work he was employed until October 1st. During October and a portion of November he was engaged upon the examination of a series of rock specimens collected by myself upon the Phillips River Goldfield, the result of which work is now incorporated with the report by Mr. Simpson, which will be issued as an appendix to Bulletin No. 35.

During the remainder of the year he has devoted his time to the identification, classification, and description of a large series of fossils collected by Mr. Campbell upon the Irwin River Coalfield, which work will be published in a special Palæontological Bulletin now in course of preparation.

#### THE GEOLOGICAL LABORATORY.

Mr. E. S. Simpson, Mineralogist and Assayer, who controls the laboratory operations, has handed me the following report upon the work carried out under his direction during the year:—

"I have the honour to submit the following report upon the work carried out under my supervision during the year 1908:—

"The accompanying table, prepared upon the same lines as those appearing in the previous annual reports, shows that the routine work of the laboratory

is still on the increase. This is especially noticeable in the work done for other Government Departments, principally for the State Batteries Branch. In consequence of the large amount of time taken up by this work it has been found impossible to devote as much attention as is desirable to the detailed examination of the material comprised in the Geological collection with regard to which authoritative information is continually in request both at home and abroad. Such information serves not only to advertise the mineral resources of the State to persons likely to enter upon local industries and enterprises, but is of the greatest assistance to the mining community already settled in the State. In order to free senior professional officers from much clerical and other work incompatible with the salaries paid to them, and in order to facilitate their investigations, it is highly desirable that a cadet and junior clerk should be attached to the staff, and another room added to the laboratory for research work.

In spite of constant interruptions a considerable advance has been made with an investigation into the composition and properties of the coal from the various seams worked at the Collie. This will have a bearing upon the relative liability to spontaneous combustion, relative keeping qualities, etc.

"A beginning has been made with a re-examination of all the bore-waters of the State. This will help to decide whether they become better or worse after long flowing and what is the ultimate source of the water.

"During the earlier portion of the year I still continued to act as a member of the Local Franco-British Exhibition Board and as such, in conjunction with Messrs. King, Maughan, and Göczel completed the collection, cataloguing, and despatching of the mineral exhibit shown by the State. This has won several prizes at the Exhibition, including a Grand Prix, and has been described in eulogistic terms by the scientific and general Press. Every effort will, I trust, be taken to preserve the greater portion of this collection intact, in order that it may be used on future occasions as an advertisement of the mining industry and resources of the State.

"During the year the Executive Council decided that the mineral collections of the Perth Museum and of the Geological Survey should be amalgamated and placed under the control of the Government Geologist. To me was allotted the task of taking over the Museum collection and preparing a combined exhibit in the Mineral Gallery. After three months of almost constant work with the assistance of Messrs. Glauert and Jackson, the greater portion of Western Australian specimens in the Museum have been gone through, weeded out, and all those of value catalogued and incorporated with the Geological Survey collection. They can now be seen in the Mineral Gallery of the Museum, where they constitute a very valuable and instructive exhibit."

From this report it will be seen that although nominally the laboratory of this Department, the great bulk of the work performed is for others and the general public. This is due to the fact that, firstly, all the referee work of the Battery Department is carried out in our laboratory, and secondly, the liberal manner in which this Department treats the prospector, by making free assays and determinations. The demand for these two have now attained such considerable proportions that the limited staff are quite unable to cope with it, and in consequence a large amount of departmental work of a research character has to be

\* Bulletin No. 31. † Bulletin No. 34.