"The Statist's returns for the year 1904 give the output as 2·33 tons value £163. This is the total value for that date. I inspected part of the workings down to 50 feet depth; the next level at 65 feet was partly flooded, so that I could not see that part. The lodes are somewhat sinuous, and vary from 18 inches to 5 feet in width, and are approximately parallel, though probably not all continuous through the lease. The formation in which the tin accompanied with tourmaline occurs is more or less decomposed granite slightly ferruginous in places and represent probably impregnations of the granite adjacent to a line of weakness caused by either fracture or pressure as is frequently the case in the Cornish mines in England.

"At M.L. 300, the South Cornwall, adjoining a portion of the west boundary of the previously described lease, another parallel lode is being worked. The main shaft is 80 feet deep, and the lode adjacent is stoped from 63 feet to the surface, for a width of eight feet from the western side where the schist is more decomposed there is a crosscut east for 78 feet which the owners state is tin-bearing all the way. This shaft is to be deepened 50 feet more, the country rock is mica schist.

"About 100 feet further north the lode has been opened up by a 50-feet shaft and is stoped from 50 feet to surface for about 250 feet in length.

"The Statist's return for the year 1904 gives for South Cornwall leases, M.L. 300 (315), 4·50 tons value £330; total to date, 13·10 tons value £931.

"Another lease, No. 374, the Lost and Found, which comprises portion of the extinct M.L. 56, Amanda, is now held by Messrs. Andrew, Winter, and McGowan, and is situated 1½ miles south of the Post Office, at the Bunbury end; here a shaft 54 feet deep in kaolinised granite has been sunk on a lode composed of four veins or bands of about five inches each, in a total width of four feet, having an underlay of about 25 degrees to the east and a strike of 40 degrees. The formation is gneissic and slightly ferruginous in places; no lode mining has previously been done here. *See* Mineral Specimen [**6516**]. This formation carries crystals of tin and tourmaline, and resembles the lode in the Cornwall lease. I was informed by Mr. Andrew that, in the lead of tin-wash near here, a solitary specimen of gold was found, weighing 1½ grains, at 24 feet depth.

"In Dumpling Gully, three-quarters of a mile north of the post office, another lode said to be five feet wide has been opened up in M.L. 375, the Glasgow, to about 30 feet depth. I did not visit the locality but obtained samples from 30 feet depth and near the surface from Warden Geary. The name of White Lode has been given to it, as it is not ferruginous; *see* Mineral Specimens [**6517, 6518**].

"I also visited M.L. 313, the Battler's Hope, held by W. and J. Johnston, already referred to, where two shafts of 113 feet and 110 feet have been put down in a mica and tourmaline schist [**6515**]. The wash level at the 113-feet shaft, the easternmost shaft, is at 93 feet; here a drive, I was informed, goes 100 feet west. The wash contained numerous water-worn boulders of quartz up to six inches diameter. The 110-feet shaft is 91 feet to the wash; a drive goes 970 feet to the west. I understand that a Government subsidy of £115 7s. 6d. was paid for sinking and driving. Unfortunately no payable wash was found. Generally in regard to the floor on which the wash occurs in this district, I was informed that it is frequently on the smooth surface of the undecomposed rock. Great activity prevails on the various leases owing to the high price of tin, which was 27s. 6d. per unit at the time of my visit.

"Since my return, I find on inquiry that the monthly returns of tin won discriminate between lode and stream tin, but the Statist's published returns give only black tin. I would suggest that the two kinds of mining be distinguished in the same way that alluvial gold is shown distinct from reef gold, and enable the change in the character of mining in this district, that is coming about, to be appreciated."

Boring for Coal near Mullewa.—Reference was made in the Annual Progress Report of the Geological Survey for the year 1903 to the Carboniferous Rocks of the Irwin River Series, and it was suggested that as the discovery of commercial coals along any portion of the Murchison Railway would be of the utmost public importance, some experimental boring should be carried out in that district.

In the month of November, 1903, arrangements were made with the Goldfields Diamond Drilling Company to bore at the 47¼ mile peg on the Geraldton to Cue Railway Line; the position of the spot may be found by reference to Lithograph C 55 issued by the Department of Lands and Surveys.

Operations were duly commenced, and despite the many causes which stood in the way of boring, a total depth of 1,418 feet was reached.

The following is a description of the strata pierced, so far as can be ascertained from the data and cores in this office:—

Strata.	Thickness of Cores.
	Feet.
Sandstone and grit...	405
Light grey mudstones and bands of fine sandstone	195
Pebble grits, ferruginous sandstones, grey shales, fine sandstone, grits, shales, and pyrites, and fine sandstones	150
Light grey mudstone with carbon and dark shales with pyrites, light grey micaceous sandy shale	80
Grey mudstone with bands of pyrites and quartzites	120
Light grey mud stones, dark grey shales with pyrites and coaly particles ...	85
Yellow grit, carbonaceous shales, black grit, dark grey micaceous shale coal ...	285
Dark carbonaceous shale with pyrites and bands of hard, dark dolomitic limestone	40
(*No record*)	58
Total depth	1,418

The bore was carried down to a depth of 1,418 feet, when operations were suspended. The strata pierced belong to the Permo-Carboniferous series, hence the object for which the bore was put down cannot be said to have been accomplished until the base of the formation has been unequivocally reached. It is proposed to carry out further boring in the district after a more detailed geological examination has been made to determine whether the whole series could not be penetrated by a series of shallow bores in the valley of the Greenough River or some of its branches.

Miscellaneous Mineral Notes.—Mr. Simpson has prepared the following notes upon some of the more important minerals, which have passed through the laboratory during the whole period under report:—

"*Tantalum ores.*—One of the most interesting features of the year has been the sudden demand for the hitherto useless metal tantalum and its ores. As much as 18s. per lb. for 80% ore was paid early in the year in London. Prices rapidly fell, however, owing to the large production and limited demand to about one-sixth of that amount. In this connection the ultimate value of the research work carried out in the laboratory was well illustrated. Immediately news was received in Perth of the demand for tantalum ores, abundant information with regard to those ores and their occurrence in the State was available for the information of those interested in the matter.

"Tantalum was first detected in this State in Greenbushes stibiotantalite (tantalate of antimony) by Mr. Goyder, of Adelaide, in 1896. Subsequently in 1900 tantalite (tantalate of iron) was detected in this laboratory in alluvial material from Greenbushes; manganotantalite (tantalate of manganese) in 1904 in material from Wodgina (Pilbara G.F.); manganocolumbite (niobate and tantalate of manganese) and calciotantalite (tantalate of lime and iron) in 1905 from Wodgina and Green's Well (Pilbara G.F.).

"At Greenbushes tantalite has been found *in situ* as a constituent of a highly micaceous greisen, but is most frequent in water-worn pieces from the size of fine shot up to 13lbs. in weight, associated with stream tin ore. An analysis of a detrital specimen yielded the following results:—

G.S.M. 2025.

Ta_2O_5	80·61
Nb_2O_5	2·50
SnO_2	1·51
WO_3	·13
H_2O combined	·14
FeO	10·94
MnO	3·78
NiO	·02
MgO	·19
$(Ce.Y)_2O_3$	*Nil*
	99·82
Sp. Gr.	7·74

"This specimen, like all other obtained from Greenbushes, showed no crystal faces.

"Associated with the tantalite, but in much smaller and less frequent pieces, is the unique mineral stibiotantalite. It is found forming thin veins in tantalite, of which it is almost certainly an alteration product due to the passage of antimonial solutions through cracks in the parent mineral, and also occurs in water-worn fragments from the size of a pin's head up to about two inches in diameter. Most of these consist of pure yellow stibiotantalite, but some consist of an ill-defined black core of tantalite surrounded by yellow stibiotantalite. It is always more or less well crystallised and exhibits one very distinct cleavage. Assays of various samples of it have given the following results:—

Ta_2O_5	51·13	51·95	50·57	per cent.
Nb_2O_5	7·56	4·49	12·58	„

"At Wodgina and Green's Well manganotantalite and manganocolumbite occur in detrital fragments from small grains up to 37 lbs. in weight associated with more or less tin ore, as well as *in situ* in veins of albite-granite. Specimens are frequently well crystallised, and the following faces were recognised on a parcel of crystalline ore from Green's Well:—a,100; b,010; c,001; u,133; k,103; m,110; e,021; g,130; y,210; z,530. These are arranged in their relative order of frequency.

"*Natural Nitrates.*—The naturally occurring nitrates of soda and potash have for many years been very profitably worked for use as fertilisers, etc., in the desert regions of Chili, India, and other countries. Owing to the somewhat similar conditions prevailing in the interior of this State, a keen lookout has been kept for some years for indications of their existence. The following are the most interesting results so far obtained:—

L.756B.,	Soil,	Kurrawang	Sodium nitrate	0·1614 %
889B.,	Water,	Cue	„	0·0217 „
1125B.	„	Pingin	„	0·0063 „
1254B.	„	Leonora	„	0·0181 „
1271B.	„	Mt. Ida	„	0·0029 „
1274B.	„	Meekatharra ...	„	0·0231 „
1278B.	„	Yundamindera ...	„	0·0085 „
1279B.	„	Niagara	„	0·0156 „
1280B.	„	Boogardie	„	0·0079 „
1281B.	„	Lennonville	„	0·0055 „
1409B.	„	Black Range ...	„	0·0222 „
1513B.	„	Pingin	„	0·0157 „

"Waters from the Norseman and Phillips River Goldfields show only the faintest traces of nitrates. In view of the close association of nitrogen-fixing bacteria with leguminous plants, it is interesting to note