

has also been abandoned in favour of the Coolgardie Water Supply."

Analysis of and report upon a hard seam of Clackline fireclay, by E. S. Simpson, Mineralogist and Assayer.

Geological Museum, No. 6256
Do. Laboratory, No. 1896

Silica SiO ₂	51.55
Titanic Oxide TiO ₂	2.19
Combined Water H ₂ O	10.41
Soda Na ₂ O31
Potash K ₂ O11
Magnesia MgO40
Lime CaO09
Iron peroxide Fe ₂ O ₃43
Alumina Al ₂ O ₃	33.25
Hygrosopic Water H ₂ O90

	99.64

From the analysis it would appear to be of excellent quality.

"I have examined the samples of Clackline firebricks submitted (by the State Mining Engineer), testing them against the well-known Garterraig bricks from Scotland, which so far as I know are the best obtainable in the local market. The following are the outlines of the test, which is as severe as it can be. The bricks as received were examined for cracks, for fused spots, and for grain. A test was made of their toughness and porosity, and the percentage of silica present was determined. They were then put cold into a red-hot fire packed round with coarse coke and brought to a white heat; after being in the fire for an hour, they were taken out, and whilst still bright red, tested for toughness and plunged into cold water, where they were left till cold. They were then again examined for cracks and signs of fusion, and tested for toughness. The results obtained were as follows:—

	Garterraig.	Clackline.
<i>As received—</i>		
Silica percentage	60.1	65.6
Large cracks	none	none
Small surface cracks	very few	numerous
Fused iron spots	few	medium
Toughness	very high	high
Grain, coarsest fragments	½ inch	¼ inch
Density, weight of 1 cub. in.	.068	.068
Water absorbed	12.9 per cent.	20.4 per cent.
<i>When red hot—</i>		
Toughness	very high	high
<i>After quenching—</i>		
Signs of fusion	none	none
Cracks	very few	few
Toughness	moderate	moderate."

BEVERLEY DISTRICT.

In March, Mr. Campbell submitted the following report on the results of a geological examination of the Beverley District:—

"In accordance with your instructions of the 7th December last, I made a visit to the Beverley district from 24th January to 19th February, taking first the easterly portion on the Mount Caroling Road and the neighbourhood of County Peak, 12 miles south from that road, and returned to Beverley *via* Bally Bally and Mount Kokeby on the 1st February.

"On the 5th February I left Beverley for Dale River westerly and examined the neighbourhood of Bechtel's station, and crossed the head of the Dale Valley westward to the Canning watershed, and thence in a south-west direction to the 47 mile post on the Albany Road on 13th February, returning to Perth on the 19th February.

"At Ford's location 3886, about two miles north of the Caroling Road and 14 from Beverley, there is a large ferruginously laminated quartz reef, strike about north and south, underlying easterly about 63 degrees; it is apparently about 30 feet wide (6609.) At a large outcrop of this reef about 10 chains south of Ford's north boundary several potholes were made many years ago, and some fair prospects are said to have been obtained. The samples collected by myself from both here and from the same reef about four chains north of the north boundary of Loc. 3886 have been tested in the laboratory, but have yielded only minute traces of gold. The reef is flanked on its western side by ferruginous schist (6610). The reef is considerably brecciated, showing that movement of the rocks has taken place. About ten chains north of the same boundary there is an east and west reef, much faulted, and both it and the adjacent gneiss rock are greatly contorted (6608); about a mile north from here there is a porphyry dyke (6607). There are numerous flat-topped hills about here with a capping of laterite, or ironstone conglomerate.

"The next locality visited was the small watercourse on the south boundary of Loc. 6043 about 21 miles from Beverley, where a small nugget of gold was found lately by Mr. C. Hine, Government Land Guide.

"Three samples of the wash in this watercourse were obtained from 6 to 15 inches depth, and also some samples of a rose-coloured quartz that lay scattered about on the north-east bank, and from some small quartz veins in the south-west bank; these samples and also some collected by Mr. Hine have been tested in the laboratory, minute traces of gold being found in the quartz samples only. The country rock is hornblende gneiss. There is a large white quartz reef about ¼ of a mile west of the watercourse having a north and south direction, and which has an unpromising appearance. The watercourse extends only about 12 chains from the road northwards, there being no outcrop of the quartz at this spot. I was not able to form any opinion in regard to it.

"I then proceeded to County Peak and inspected the large quartz reef on which a shaft has been sunk at the north corner of Loc. 2587; this shaft was made by one Jenkins, and is said to be 40 feet deep with a crosscut to the east and a winze. It is said that some prospects of 13 dwts value were obtained here. This reef is over 30 feet wide, and it outcrops very conspicuously for half a mile to the north and south; beyond this distance northward it seems to disappear, but it can be traced at intervals for 3 miles to the south, outcropping very distinctly on the north boundary of Loc. 3705. The quartz throughout is mostly very white with rose-coloured patches, more particularly where cross-jointing occurs.

"On the north boundary of Loc. 3863 about $\frac{3}{4}$ mile east of County Peak, or Quajabin, two fencers, Dan Turnbull and John Ryan, found a 1dwt. slug of gold about November last, while sinking holes for posts. The gravelly soil is here about 18 inches thick, resting on the granite; a small patch has been stripped and shows veins of an amber coloured quartz. There are two diorite dykes adjacent (6614, 6615). The best method of testing both this gravel and the wash in the watercourse at Loc. 6043 would be by means of dryblowing. About $\frac{3}{4}$ mile from here, near the east boundary of Loc. 3190, there is another outcrop of a rosy quartz reef, and another very ferruginous one in Loc. 4945 (6620). None of my samples of quartz and soil from this neighbourhood however have been found according to the Laboratory analyses to contain any gold.

"An east and west dyke of a very coarse-grained diorite, resembling a green syenite, occurs in Loc. 2614, half a mile south of County Peak; it outcrops in large boulder-like blocks (6612). The adjacent rock is a coarsely laminated gneiss (6611). Another very similar outcrop occurs farther south on the north margin of the salt lake.

"Quajabin Peak and the line of laterite topped hills north-westerly from there comprise a belt of hornblende gneiss and granite (6613, 6617). The decomposition of this rock forms most of the rich chocolate coloured soil in this neighbourhood.

"My return journey was made through Bally Bally, where there is a very large white quartz reef about 45 feet wide, forming the top of 'Quartz Hill' in Loc. 3735; it is very similar in character to the large reef near County Peak; its strike is 35 degrees. There is a parallel diorite dyke a few chains to the eastward of this reef and another $\frac{3}{4}$ mile to the east which passes through Kilpatrick's homestead ground.

"My visit to the Dale River was made by the road through Annaudale to Bechtel's station, where at Loc. 6447 and Loc. 6448 there is a large reef having an approximate east and west course. At an outcrop in a gully a little north of the north-west corner of Loc. 6445, some surface work has been done by Mr. Bechtel; the reef is here about 22 feet; it underlays south. A diorite dyke about 100 feet wide crosses the reef about 100 feet west of the place; both the quartz and the diorite are slightly pyritic. There is another large outcrop of quartz in the centre of Loc. 6444 having a slightly more north-easterly course, which may be the same reef. Samples from both these localities have yielded minute traces of gold according to the Laboratory report.

"Outcrops of a continuation westerly from these localities were inspected at the division line between Loc. 6447 and 6448 where there is a ferruginous schist on the north side of the reef and at the west boundary of 6448 and along a ridge for 15 chains westerly; at the crossing of the watercourse at the latter place a pothole was made by Jones and party, but no gold occurs in my samples from these two places according to the Laboratory tests. The reef reappears $\frac{1}{4}$ mile westerly and continues for about half a mile farther.

"I was informed by old residents that about the year 1887 a hawker named Carl Heider lost his way in this neighbourhood and found his way out to the Perth-Albany road somewhat south of the 47 mile post, where there was then the Coach and Horses Inn. When there he showed some quartz with gold in it, which he said he had found in a gully within 24 hours before reaching the road. He afterwards spent a month in company with Mr. T. Willey searching for it, but without success. I saw Mr. Willey, and he showed me a piece of this stone, and I thought that it would be worth while to travel through this tract of country, and on 12th February I left the boundary of Bechtel's Loc. 6448 and journeyed 7 miles west with a pack-horse to the surveyed watershed boundary of the Canning. At about $73\frac{3}{4}$ miles according to the plan numbering, if my identification of the spot is correct. It is most unfortunate that neither the Canning nor the Helena river's watershed survey posts are numbered so that identification of the posts is rendered difficult even to a surveyor: this is, I submit, an omission that ought to be rectified before the cut lines are too much overgrown or obliterated. On my way I found all the watercourses' pools dry, so that when on the ridge I decided to take a south-west direction so as to cut the Albany road in the shortest possible direction, 11 miles. It was across the trend of all the valleys and ridges of the head of the Canning watershed, and I passed over some very rough country and bare granite tracts before I struck the road at the 47 mile post. The Dale side is largely undulating country, but the western side is very rough. I saw a few quartz reefs, and also some diorite resembling the coarse kind near County Peak. I did not see any gold. I then proceeded to the Bannister River, reaching Pollard's on the evening of the 13th. At the Bannister River I noticed some quartz reefs and diorite dykes and was told of some other reefs in the neighbourhood; a little alluvial gold was found eight years ago in Loc. 341.

"Mr. Schorer, the postmaster of Wandering and now of York, I was told, found a small piece of gold-bearing quartz at Wandering, and Mr. Geo. Watts I understand has a slug of gold found by Mr. R. Pollard on the Hotham river, eight miles south of Bannister. I however did not spend any time in this locality, and made as speedy a return as possible by conveyance *via* the Wandering settlement to the Dale river, and returned to Perth on the 19th February.

"My journey showed that there are numerous quartz reefs in the Beverley district, some very promising looking, but only the samples from Ford's and Bechtel's selections yielded any traces of gold on assay in the Laboratory; but the finding of occasional nuggets of alluvial gold and pieces of auriferous quartz show that there may yet be some gold patches in the district. I regretted having to make such a hurried journey across the Canning area. The month of September would probably be the best time to go there.

"Attached is a list of mineral specimens obtained from these districts, and also three lithos 343A/40, 342/S0, and 379/S0 showing the route and localities visited."

Mineral Specimens from Beverley District.

Regd. No.	Lab. No.	Coll. No.	Specimen.	Gold Assay.	No. of Specimens.
6607	...	1	Porphyry dyke, 3 miles N. of Mt. Coroling Road and N. of Loc. 3886	...	3
6608	...	2	Contorted gneiss and quartz veins, 10 chs. N. of Loc. 3886	...	1
...	1700	3	Quartz, 10 chs. N.E. of spec. No. 4, E. and W. reef	Minute trace	
6609	1701	4	Ferruginous quartz reef, 3 chs. N. of Loc. 3886	do.	
...	1702	5	Ferruginous quartz reef, E. side of high outcrop of Loc. 3886	do.	
...	...	6	Ferruginous gossan of reef	...	
...	1703	7	Earth at 2 chs. S. of No. 5	do.	
6610	...	8	Ferruginous schist, W. side of reef, Loc. 3866	...	3
...	1704	9	Quartz floaters, adjacent to Coll. No. 11	Minute trace	
...	1705	9a	Do. do. do.	do.	
...	1706	10	Earth at Coll. No. 9	Nil	
...	1707	11	Earth at Watercourse, 15 chs. from road, Loc. 6043	Nil	
...	1708	12	Earth opposite (20ft. N.) of 10 ch. peg N. side of road crossing, Loc. 6043	Nil	
...	...	13	Hornblende gneiss, head of the above small gully	...	
6611	...	14	Coarsely laminated gneiss, Loc. 2614, half mile S.W. of Quajabin or County Peak, S. boundary	...	2
6612	...	15	Coarse-grained diorite, Loc. 2614, S. boundary	...	3
6613	...	16	Hornblende gneiss, near top of County Peak	...	3
...	...	17	Granite, N.E. side of County Peak, Loc. 3191; a similar rock occurs in Loc. 2620	...	
...	...	18	Quartz, Loc. 3190, $\frac{1}{4}$ mile N.W. of County Peak	Nil	2
6614	1709	19	Diorite, Loc. 3863, 5 chs. S. of N. boundary E. and W. dyke	...	1
6615	...	20	Diorite, Loc. 3863, N. boundary, N.W. and S.E. dyke near where 1dwt. nugget of gold was found	...	3
6616	...	21	Epidote, Loc. 2587, about one mile N.W. from Quajabin Peak, N. side of diorite	...	2
6617	...	22	Hornblende gneiss, Loc. 5040, 2 miles N.W. of Peak	...	3
...	...	23	Coarse diorite, S. of Loc. 6854, at edge of Lake, similar to 6612, Coll. No. 15	...	
6618	...	24	Granite, Loc. 808, well dump	...	1
6619	1710	25	Quartz, Loc. 5040, 34 chs. N.E. of shaft	Nil	3
...	1711	26	Wash from where 1dwt. nugget was found on Loc. 3863	Nil	
6620	1712	27	Quartz, outcrop in Loc. 4945	Nil	
6621	1776	28	Quartz, near N.W. corner of 6445, Bechtel's	Minute trace	2
6622	...	29	Diorite, crossing reef, spec. 6621	...	2
...	1777	30	Quartz outcrop centre of 6444 strike 267ft.	Minute trace	
...	1778	31	Ferruginous casing of reef, crossing middle boundary, 6647-6648	Nil	
...	1779	32	Pothole in reef, crossing W. boundary 6448	Nil	
6623	...	33	Pyritous diorite, W.R. 9336, Dale River	...	3
...	...	34	Ferruginous gneiss, in W.R.	Gold, Nil Silver, Nil Copper, Nil	
6624	1780	35	Quartz, 7 chs. E. of W. boundary, Loc 6448	Nil	
...	1781	36	Quartz, Loc. 6257 (Noonan's)	Nil	
...	1782	37	Quartz, Loc. 341, Bannister River	Nil	
6625	...	38	Diorite, central portion of dyke, Loc. 341	...	1
6626	...	39	Diorite, shows central change of texture	...	2
6627	...	40	Diorite, outer portion of dyke	...	2
6628	...	41	Granite, N.E. side of County Peak, Loc. 3191	...	2
6629	...	42	Felsite, S. boundary Loc. 6446, Bechtel's, Dale River	...	1
6630	...	43	Diorite, S. boundary Loc. 6446, Bare Hill	...	1
6631	...	44	Granite, Booraginning Rocks	...	2
6632	...	45	Granite, Conoring Rocks	...	1
6633	...	46	Granite, Loc. 2911, near Yenadine Pool, cave in granite, flake from interior of cave	...	1