

A return was supplied by the Government Mineralogist and Analyst of 18 samples sent in by prospectors from the Wongamine area. Of these only eight showed any gold, and only three contained gold in payable quantities. Of the last three, two were stated to have been obtained from the pothole on the Reward Claim.

Such auriferous veins as occur in the area are likely to be narrow and of no great length.

8.—PROGRESS REPORT ON THE ALUNITE SURVEY OF THE LAKE BROWN LAKE SYSTEM.

(F. G. Forman, B.Sc.)

I was engaged on field work in connection with this survey from 24th November to 19th December, 1930, and from 5th to 10th January, 1931. The latter period was taken up in a detailed sampling and estimation of quantities of alunite available on M.C. 103H south of Campion.

Alunite occurs in the beds of the Salt Lakes of this district in the form of an extremely tenacious clay which, however, becomes very hard on drying. The clay as exposed on the lake beds is usually light grey in colour, but varies with depth, through various shades of grey and red to almost pure white. It is the dark grey variety of clay which apparently carries the highest percentage of alunite.

Of interest is the fact that in nearly all cases where tested with litmus paper the water of the Lake system was found to be strongly acid in reaction. In the case of Lake Deborah, however, the water was either only very slightly acid or even neutral. As a sample giving a high percentage of alunite (62.8 per cent.) was obtained from Lake Deborah, near Baladjie Siding, where the water was neutral to litmus, it appears that the acidity of the water is not indicative of the formation of alunite. As this statement is made on the evidence of only a single observation, it would be best not to place too much reliance on it until further sampling and testing is carried out in the locality.

The Salt Lake System between Lake Deborah, north of Bullfinch, and Baandee was followed up and sampled wherever there appeared to be a chance of an occurrence of the grey alunite-bearing mud. Sampling was not confined to deposits of large area, even insignificant clay pans being sampled in many instances, the object being to obtain as much information as possible on the distribution of alunite throughout the area.

One sample was also taken from the drainage channel of Lake Seabrook where it crosses the Eastern Goldfields Railway at Yellowdine. Lake Seabrook

itself was not sampled owing to the Utility Truck used for transport being unable to negotiate the rough and sandy track between Yellowdine and the Lake.

The accompanying sketch map* shows the distribution of the samples collected and the percentage of alunite present at each locality. It will be seen that the alunite has a very wide distribution although high percentages are only present in a few localities.

Lake Chandler, south of Campion, was sampled by the Government Geologist in November, 1928, and found to contain large quantities of high grade material.

The upper part of the bed of a lake four miles south of Lake Chandler on which is situated M.C. 103H was found to carry high percentages (55.68 per cent.) of alunite for the first six inches to one foot in depth. Below this depth the amount of alunite present in the clay was found to decrease, being usually between 35.45 per cent.

The beds of two small lakes south of Warrachuppin siding were found to carry values as high as 51.8 per cent., but the values are very patchy and there is much low grade material present.

At Lake Deborah, north of Baladjie Siding, the bed of the lake consists of a very wet grey mud carrying a great deal of crystallised gypsum. As the locality was not thought favourable for the presence of alunite, only one sample was obtained. This sample on analysis yielded 62.8 per cent. of alunite, which is as good as some of the more promising material from Chandler Lake and M.C. 103H. If further work is done in the future it would be well to sample the south arm of Lake Deborah thoroughly, in order to determine the extent of the high values.

The remainder of the samples taken gave disappointing results, but they indicate that the alunite is by no means confined to one or two localities but occurs in small quantities almost all through the Lake System under examination.

M.C. 103H, which was sampled in detail during the second period of field work, was found to contain approximately 181 acres of workable alunite-bearing clay, the first foot in depth of which would average about 61 per cent. alunite. Between the depth of one foot and two feet the material averages about 51 per cent. alunite over an area of perhaps 150 acres; the decreased area being due to the slowly shelving bottom of the lake. In those parts of the lake which contain as much as three feet of clay samples were obtained giving an average of 36 per cent. alunite. The area available of this material is uncertain owing to the uneven nature of the lake floor.

LOCATIONS OF ALUNITE SAMPLES.

Nos. S. 1—S. 7	...	From Wolfe's Claim, M.C. 103H, South of Campion.
Nos. S. 8—S. 13	...	From Lake Brown North of Loc. 14037: Lands Litho. 35/80.
Nos. S. 14—S. 17	...	do. do. Loc. 14215: do.
Nos. S. 18—S. 25	...	From two lakes South of railway at Warrachuppin on Locs. 338-337 and 382: Lands Litho. 35/80.
No. S. 26	...	From Lake Deborah, North of Baladjie Siding.
Nos. S. 27 & S. 28	...	From Lake Deborah at the Peninsula, North of Bullfinch.
No. S. 29	...	From lake crossing the railway, two miles East of Yellowdine.
Nos. S. 30—S. 32	...	From Loc. 15629: Lands Litho. 25/80.
No. S. 34	...	From M.C., 28 Hines Hill.
No. S. 35	...	From lake on Loc. 11159: Lands Litho. 34/80.
No. S. 36	...	From lake on Loc. 14195: Lands Litho. 34/80 (North-East of Nungarin).
Nos. S. 37 & S. 38	...	From Western end of Lake Brown, near Eaglestone Hill.
No. S. 39	...	From lake on Loc. 9155, South of railway, between Baandee and Doodlakine.
Nos. S. 40 & S. 41	...	From lake on Reserve A17247, South of railway, near Baandee.
Nos. S. 42—S. 50	...	From Wolfe's Claim, M.C. 103H, South of Campion.

* Map not published.

ANALYSES.

Lab. No.	Mark.								Water soluble, SO ₃ .	Soda soluble, SO ₃ .	Approximate percentage of Alumite.
									%	%	%
5290/30	S. 1	Bore No. 1—0	ft. 0	in. to 1	ft. 0	in. ...	...	...	.24	1.66	4.3
5291/30	...	...	1	0	2	0	...	...	.39	5.37	13.9
5292/30	...	...	2	0	4	0	...	...	.38	4.54	11.7
5293/30	S. 2	Bore No. 2—0	0	1	0	...	...	...	.39	26.54	68.5
5294/30	S. 3	Bore No. 3—0	0	1	6	...	...	...	.42	25.84	66.7
5295/30	S. 4	Bore No. 4—0	0	1	6	...	...	...	.30	26.58	68.6
5296/30	S. 5	Bore No. 5—0	0	1	9	...	...	...	.40	23.41	60.4
5297/30	...	...	1	9	2	0	...	...	.31	12.07	31.1
5298/30	...	...	2	0	3	6	...	...	.27	19.67	50.7
5299/30	...	...	3	6	4	6	...	...	.15	1.36	3.5
5300/30	S. 6	Bore No. 6—0	0	1	0	...	...	...	.37	23.83	61.5
5301/30	...	...	1	0	3	3	...	...	.39	20.76	53.6
5302/30	...	...	3	3	4	2	...	...	.29	5.21	13.4
5303/30	S. 7	Bore No. 7—0	0	1	0	...	...	...	.36	26.52	68.4
46/31	S. 8	...	...	...	1	0	...	...	.46	1.05	2.71
47/31	S. 8	...	1	0	2	8	...	...	.48	.59	1.52
48/31	S. 8	...	2	8	4	0	...	...	.45	1.28	3.30
49/31	S. 8	...	4	0	4	10	...	...	.42	1.48	3.92
50/31	S. 9	...	0	0	2	9	...	...	.46	1.63	4.28
51/31	S. 9	...	2	9	5	0	...	...	.32	1.88	4.85
52/31	S. 10	...	0	0	3	3	...	...	.44	2.01	5.19
53/31	S. 11	...	0	0	1	0	...	...	.51	3.13	8.08
54/31	S. 12	...	Red clay 9in., then grit	...	...	...	...	...	.57	3.99	10.29
55/31	S. 13	...	ft. 0	in. 0	ft. to 7	in. 6	...	...	.55	2.39	6.17
56/31	S. 14	...	0	0	2	3	...	...	.40	3.20	8.3
57/31	S. 14	...	2	3	3	0	...	...	.31	1.09	2.8
58/31	S. 15	...	0	0	3	0	...	...	.44	2.50	6.5
59/31	S. 16	...	0	0	2	0	...	...	.49	3.57	9.2
60/31	S. 17	...	0	0	1	6	...	...	.41	3.32	8.6
61/31	S. 17	...	1	6	3	0	...	...	.37	1.33	3.4
62/31	S. 18	...	0	0	1	6	...	...	.30	11.01	28.4
63/31	S. 19	...	0	0	0	6	...	...	.42	12.18	31.4
64/31	S. 20	...	0	0	0	3	...	...	1.42	10.91	28.1
65/31	S. 21	...	0	0	0	6	...	...	.36	4.32	11.1
66/31	S. 22	...	0	0	0	6	...	...	.49	19.84	51.2
67/31	S. 22	...	0	6	1	6	...	...	.40	9.86	25.4
68/31	S. 23	...	0	0	0	3	...	...	.73	20.06	51.8
69/31	S. 24	...	0	0	3	0	...	...	.53	14.02	36.2
70/31	S. 25	...	0	0	2	6	...	...	.38	6.32	16.3
71/31	S. 26	...	...	...	...	...	...	...	13.04	24.33	62.8
72/31	S. 27	...	...	...	...	...	...	...	6.62	1.92	4.9
73/31	S. 28	...	...	...	...	...	...	...	5.13	1.10	2.8
74/31	S. 29	...	...	...	...	...	...	...	.88	.53	1.4
75/31	S. 30	...	0	0	0	4	...	...	.40	14.63	37.7
76/31	...	...	0	4	1	0	...	...	.41	6.66	17.2
77/31	S. 31	...	0	0	0	9	...	...	.46	13.97	36.0
78/31	S. 32	...	0	0	1	0	...	...	.43	13.62	35.1
79/31	S. 34	...	0	0	0	6	...	...	.56	8.89	22.9
80/31	...	...	0	6	1	6	...	...	.58	12.26	31.6
81/31	...	...	1	6	2	0	...	...	.29	11.82	30.5
82/31	...	...	2	0	2	6	...	...	.36	8.12	20.9
83/31	S. 35	...	3in. gypsum, 1ft. clay, then grit	...	...	...	...	...	3.80	3.57	9.2
84/31	S. 36	...	ft. 0	in. 6	ft. to 2	in. 6	...	...	11.64	3.72	9.6
85/31	S. 37	...	0	0	2	3	...	...	27.58	4.56	11.8
86/31	S. 38	...	...	...	...	...	...	...	21.92	5.62	14.5
87/31	S. 39	...	...	...	...	...	...	...	9.44	Nil	Nil
88/31	S. 40	...	0	0	2	0	...	...	.72	Nil	Nil
89/31	S. 41	...	0	0	3	6	...	...	.62	.22	.6
90/31	Warrachuppin North Lake	...	...	...	...	...	...	...	.58	3.70	9.5
223/31	S. 42	...	...	...	...	...	...	...	1.04	21.12	54.5
224/31	S. 43	...	...	...	...	...	...	...	.34	24.99*	64.5
225/31	S. 44	...	...	...	...	...	...	...	.29	14.00	36.1
226/31	S. 45	...	...	...	...	...	...	...	.58	24.87	64.2
227/31	S. 46	...	...	...	...	...	...	...	.40	21.68	55.9
228/31	S. 47	...	...	...	...	...	...	...	.40	12.32	31.8
229/31	S. 48	...	...	...	...	...	...	...	.78	24.92	64.3
230/31	S. 49	...	...	...	...	...	...	...	.36	22.97	59.3
231/31	S. 50	...	...	...	...	...	...	...	.31	16.15	41.7
91/31	L.B. 1	...	...	...	...	...	...	...	.32	.10	.3

* Also soda soluble ... K₂O ... 6.90
Na₂O51

Note.—The above analyses were compiled from the original assay certificates issued by the Government Mineralogist and Analyst.