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GEOCHEMICAL TEST SURVEY
BABE GOLD DEPOSIT
Queen Charlotte Islands, BC NTS 103-F-9

May 16, 1978 B. D. Simmons

Vancouver, B. C.

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SUMMARY

In a recent compilation of gold occurrences in British Columbia, the north end of the Queen Charlotte Islands was suggested as a favourable area for "Carlin-style" gold deposits. A known subeconomic zone, the Babe, was selected as a test area to develop a geochemical tool for exploration in the region. The Babe is a subcropping zone of mineralization with estimated reserves greater than 50 million tons at 0.06 oz/ton gold.

Analytical results indicate that the Babe is reflected by highly anomalous mercury, arsenic, and gold values in silt samples up to one mile downstream from the deposit. Limited soil sampling indicates that the target area could be more closely defined by mercury, silver, and possibly gold content of the organic-rich "A" horizon. Antimony and tellurium are not useful indicators for either silt or soil samples.

The feasibility of using stream sediment sampling on a reconnaissance basis has been demonstrated. A program will be initiated during the current season. Because of the large volume of acid volcanics in the area, base metal possibilities will be considered in addition to gold.

INTRODUCTION

In a recent compilation of gold occurrences in B. C. (B. Simmons, Feb. 1978), the north end of the Queen Charlotte Islands was suggested as a favourable location for possible "Carlin-style" gold deposits. As an initial step in investigating the area, an orientation survey over the subeconomic Babe deposit was recommended to develop a geochemical tool useful on a reconnaissance basis.

A test survey was completed by B. Simmons and K. Christensen over a two day period in mid March. Sixty-five samples were collected (silts, soils, rocks) and analyzed for Au, Ag, Sb, Te, Hg, and As. These elements were selected on the basis of prior data and consultation with I. L. Elliott. Analytical costs were $16.89 per sample.

GEOLOGY

The Babe deposit is a subcropping zone of disseminated mineralization with published reserves of over 50 million tons at 0.06 oz/ton gold and 0.1 oz/ton silver. Mineralization occurs at the periphery of a large center of acid-basic Eocene volcanism. Mineralization is bounded on the west by a subsidiary of the Sandspit Fault, part of the cirum-Pacific fracture system. Host rocks are brecciated Eocene rhyolite and poorly-consolidated overlying sediments. Significant mineralization covers a surface area of about 1500 by 3000 feet. Generalized geology is shown on Figure 1.

The deposit is covered by a relatively thin (average ± 10 feet ?) layer of residual overburden. Relief is low to moderate and several small creeks cut across the immediate area.

STREAM SEDIMENT GEOCHEMISTRY

All streams were silt sampled at 500 foot intervals with results summarized on the enclosed six maps. Arsenic and mercury appear to be excellent indicators resulting in highly anomalous values up to one mile downstream from the deposit. Gold values are erratic but generally anomalous for at least 2000 feet downstream. Silver is weakly anomalous in the immediate area of the deposit but downstream dispersion is minimal. Antimony and tellurium are not anomalous.

(NOTE: Because of limited data, statistical calculations of background and threshold values are not justified. Indicated magnitudes are, however, consistent with generally accepted values.)

SOIL GEOCHEMISTRY

Although the main objective of the field work was investigation of dispersion in stream sediments, some limited soil sampling was completed. The humus-rich "A" horizon was sampled at 200 foot intervals along a Y-shaped traverse across the deposit. Anomalous mercury and silver values closely correlate with the known mineralization. Strangely, arsenic appears to be depleted

over the mineralized zone and enriched in adjacent areas (??). Antimony and tellurium are not valuable indicators.

The pattern of gold values is uncertain although spot highs are indicated. Unfortunately, insufficient sample was collected to allow accurate analyses for each sample location. It is now apparent that either over-size sample bags should be used or the samples should be pre-sieved in the field.

A single soil profile was sampled with the results indicated in Figure 2. Although the indicator elements appear to be most enriched within the "B" horizon, the anomaly to background contrast is still excellent within the more easily sampled "A" horizon.

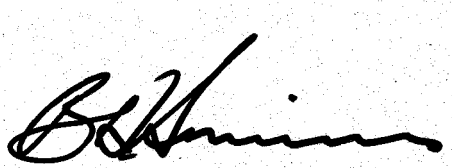
CONCLUSIONS

(1) Mercury, arsenic, and to a lesser extent gold form highly anomalous patterns in silt samples up to one mile downstream from the Babe gold deposit. Silver, tellurium, and antimony do not appear to be useful indicators for stream sediments.

(2) Preliminary investigation suggests that humus sampling may be a useful follow-up tool. Mercury, silver, and possible gold may be good indicator elements.

(3) A program of reconnaissance mapping and silt sampling will be conducted during 1978 for the favourable area of QCI

accessible by road. Samples will be analyzed for mercury, arsenic, and gold (to define gold targets) as well as copper, zinc, and cadmium (to indicate base metal targets in this large area of acid volcanism). Analytical costs will be $12.75 per sample. The project will require one geologist and one assistant for a period of about two weeks.



B. D. Simmons

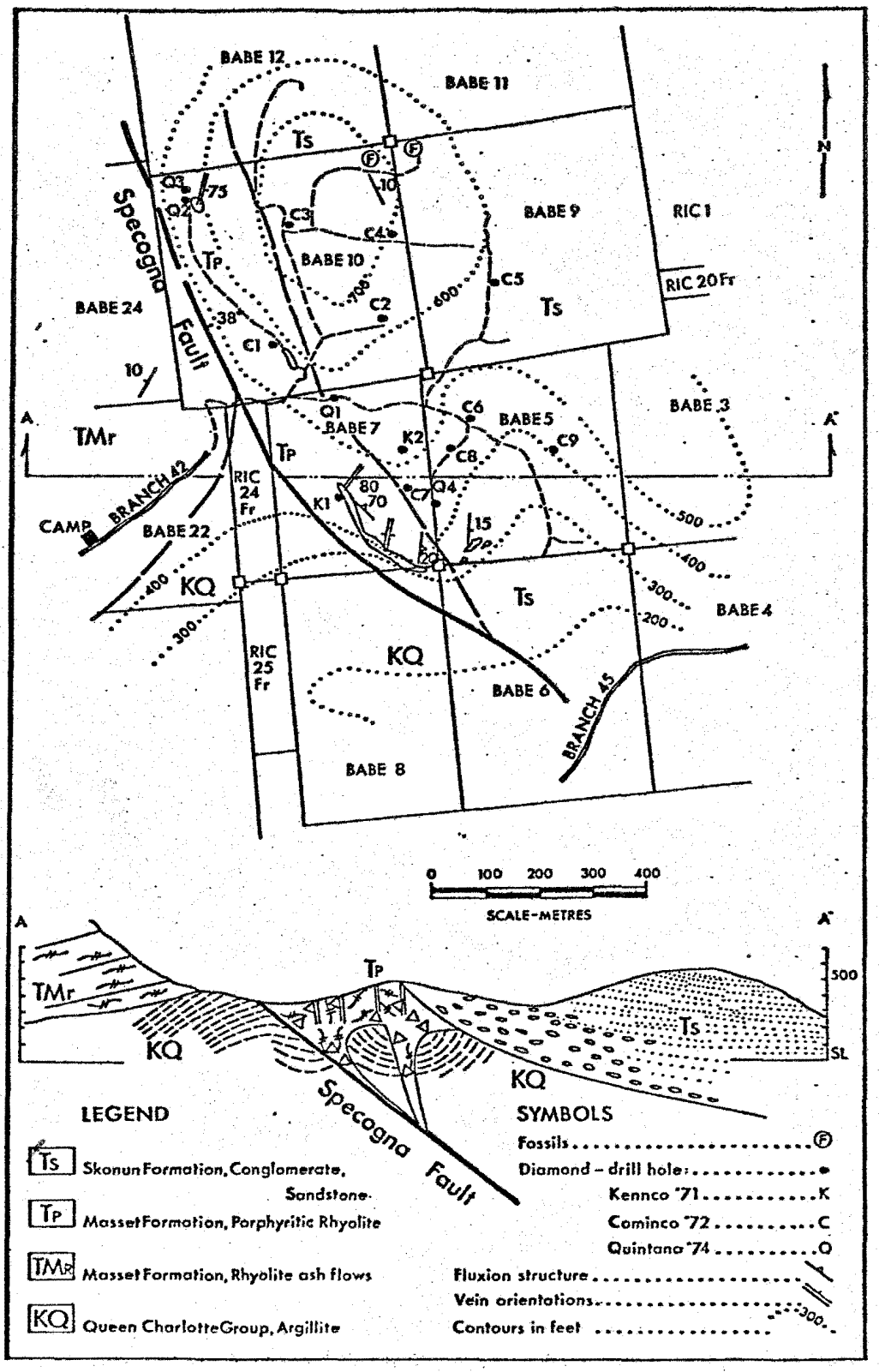


Figure G-34. Geological sketch map and section, Babe gold prospect.

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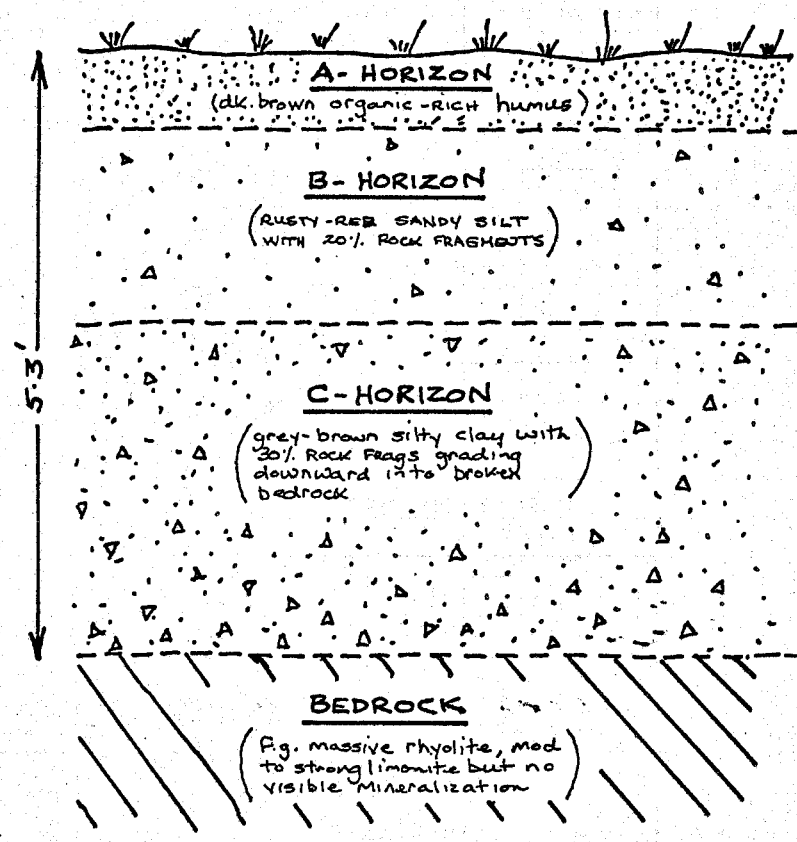
FIGURE 1

(FROM BCDM GEM REPORT, 1975)



SAMPLE No.	ppb Au	ppm Ag	ppb Hg	ppm As	ppm Sb	ppm Te
39590	105	1.0	110	116	<1	<0.2
39591	290	1.0	330	240	<1	<0.2
39592	75	0.2	125	35	6	<0.2
B-1	580	0.6	95	96	12	<0.2

FIGURE 2

SOIL PROFILE @ N. END BABE DEPOSIT

(NOT TO SCALE)

BDS - May/78.

APPENDIX

ANALYTICAL RESULTS

BABE GOLD ORIENTATION SAMPLES

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SAMPLE NO.	Ag ppm	Cu ppm	Mo ppm	As ppm	Hg ppb	Sb ppm	Au ppb	Te ppm	REMARKS
24231 E	<0.2	26	3	-	-	-	-	-	
24232	0.4	30	2	-	-	-	-	-	
24233	<0.2	68	1	-	-	-	-	-	
24234	0.4	58	11	-	-	-	-	-	
24235	0.4	67	3	-	-	-	-	-	
24236	0.2	58	4	-	-	-	-	-	
24237	0.5	49	2	-	-	-	-	-	
24238	0.3	38	2	-	-	-	-	-	
24239	0.5	34	8	-	-	-	-	-	
24240	0.3	28	9	-	-	-	-	-	
24003	0.4	-	-	180	115	8	115	<0.2	
24004	0.2	-	-	156	85	3	60	<0.2	
24005	0.2	-	-	70	145	9	75	<0.2	
24006	0.2	-	-	160	90	6	20	<0.2	
24007	0.2	-	-	140	180	4	10	<0.2	
24008	0.2	-	-	100	240	1	15	<0.2	
24009	0.2	-	-	104	180	6	20	<0.2	
24010	0.2	-	-	90	270	6	10	<0.2	
24011	0.2	-	-	104	165	1	10	<0.2	
24012	0.2	-	-	110	100	< 1	< 5	<0.2	
24013	0.2	-	-	25	80	2	5	<0.2	
24014	0.2	-	-	58	90	< 1	< 5	<0.2	
24015	0.2	-	-	30	85	4	< 5	<0.2	
24016	0.2	-	-	190	270	< 1	5	<0.2	
24017	0.2	-	-	140	230	< 1	< 5	<0.2	
24025	0.2	-	-	3	75	< 1	< 5	<0.2	
39562 D	0.2	-	-	8	235	2	15	<0.2	
39563	0.6	-	-	48	150	< 1	<25*	<0.2	
39564	1.0	-	-	280	225	IS	IS	<0.4*	
39565	0.2	-	-	380	110	< 1	5	<0.2	
39566	0.3	-	-	680	180	< 1	<25*	<0.2	
39567	0.3	-	-	880	140	< 1	<15*	<0.2	
39568	0.4	-	-	416	115	< 1	5	<0.2	
39569	0.2	-	-	40	44	1	5	<0.2	
39570	0.2	-	-	22	80	2	< 5	<0.2	

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SAMPLE NO.	Ag ppm	Cu ppm	Mo ppm	As ppm	Hg ppb	Sb ppm	Au ppb	Te ppm	REMARKS
39571 D	0.2	-	-	15	70	3	< 5	<0.2	
39572	0.2	-	-	85	125	< 1	10	<0.2	
39573	0.2	-	-	104	175	3	10	<0.2	
39574	0.2	-	-	156	75	5	< 5	<0.2	
39575	0.2	-	-	70	110	1	< 5	<0.2	
39576	0.2	-	-	70	200	< 1	< 5	<0.2	
39577	0.2	-	-	48	135	1	<10*	<0.2	
39578	0.2	-	-	560	100	< 1	< 5	<0.2	
39579	0.2	-	-	75	275	< 1	10	<0.2	
39580	0.3	-	-	220	290	1	10	<0.2	
39581	0.2	-	-	360	375	IS	IS	<0.2	
39582	0.2	-	-	480	235	< 1	<10*	<0.2	
39599	0.2	-	-	82	110	2	<10*	<0.2	
39600	0.5	-	-	32	210	IS	IS	<0.2	
24018 E Soils	0.5	-	-	28	285	< 1	IS	<0.2	
24019	0.4	-	-	85	220	< 1	IS	<0.2	
24020	0.4	-	-	>1000	190	IS	IS	IS	
24021	0.2	-	-	>1000	190	< 1	<15*	<0.2	
24022	0.2	-	-	30	50	< 1	<10*	<0.2	
24023	0.3	-	-	32	210	< 1	IS	IS	
24024	0.3	-	-	30	170	< 1	<50*	<0.2	
24040	1.2	-	-	< 2	180	< 1	IS	<0.2	
39583 D	0.3	-	-	3	160	< 1	<10*	<0.2	
39584	0.8	-	-	< 2	180	< 1	15	<0.2	
39585	0.8	-	-	10	220	< 1	IS	<0.4*	
39586	1.0	-	-	2	250	< 1	<25*	<0.2	
39587	3.4	-	-	2	200	< 1	< 5	<0.2	
39588	2.5	-	-	< 2	275	< 1	IS	<0.4*	
39589	1.0	-	-	2	200	< 1	<50*	<0.2	
39590	1.0	-	-	116	110	< 1	105	<0.2	
39591	1.0	-	-	240	330	< 1	290	<0.2	
39592	0.2	-	-	35	125	6	75	<0.2	
39593	1.0	-	-	2	330	< 1	10	<0.2	
39594	3.2	-	-	20	1400	4	375	<0.2	
39595	1.4	-	-	< 2	295	< 1	IS	<0.4*	

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SAMPLE NO.	Ag ppm	Cu ppm	Mo ppm	As ppm	Hg ppb	Sb ppm	Au ppb	Te ppm	REMARKS
39596 D	0.6	-	-	12	240	< 1	<35*	<0.2	
39597	2.8	-	-	15	295	< 1	< 5	<0.2	
39598	5.0	-	-	15	345	IS	IS	IS	
E - 1 ROCKS	0.6	-	-	96	95	12	580	<0.2	
2	3.5	-	-	720	2100	33	3200	<0.2	

cc Mr. B. Simmons

IS denotes 'insufficient sample'

*detection limit on a small sample

- stream sediment sample
- o soil sample ("A" horizon)
- approx. limit sig. mnlzn. (from ddh pattern)
- property boundary

I.S. = INSUFFICIENT SAMPLE

* = DETECTION LIMIT FOR SMALL SAMPLES

BABE GOLD DEPOSIT
Geochemical Survey
103-F-9

GOLD - ppb's

0 1000 2000 3000 FT

BCL March/79.

- stream sediment sample
- o soil sample ("A" horizon)
- approx. limit sig. mnlzn. (from ddh pattern)
- property boundary

BABE GOLD DEPOSIT
Geochemical Survey
103-F-9

SILVER - ppm's

0 1000 2000 3000 FT

BDL March/78

BABE GOLD DEPOSIT
Geochemical Survey
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ANTIMONY - ppm's

- stream sediment sample
- o soil sample ("A" horizon)
- approx. limit sig. mnlzn. (from ddh pattern)
- property boundary

I.S = INSUFFICIENT SAMPLE

0 1000 2000 3000 FT

BGL March/79

MAC-BLO BRANCH 42

MAC-BLO BRANCH 45

YAKOUN RIVER

● stream sediment sample

o soil sample ("A" horizon)

approx. limit sig. mnlzn. (from ddh pattern)

property boundary

I.S. = INSUFFICIENT SAMPLE

* = DETECTION LIMIT FOR SMALL SAMPLES

BABE GOLD DEPOSIT
Geochemical Survey
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TELLURIUM - ppm's

0 1000 2000 3000 FT

BBL March/78

stream sediment sample

soil sample ("A" horizon)

approx. limit sig. mnlzn. (from ddh pattern)

property boundary

BABE GOLD DEPOSIT
Geochemical Survey
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ARSENIC - ppm's

0 1000 2000 3000 FT

BCL March/79

- stream sediment sample
- o soil sample ("A" horizon)
- approx. limit sig. mnlzn (from ddh pattern)
- property boundary

BABE GOLD DEPOSIT
Geochemical Survey
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MERCURY - ppb's

0 1000 2000 3000 FT

BGR Aug. 78