841546

1979-10-04

Let's see what kind of deal we can make E-

SUMMARY NOTES
HUSTON CLAIMS

Location: 115 km SSE of Sandspit, 3 km SE of Jedway, Q.C.I. 103 B/6E

Claims: Huston #1, 2 and 3, totalling 44 units.

Geology: The claims are situated in a structurally complex, metal-rich regime, unequalled on the Queen Charlotte Islands with respect to the surface density of showings. In this area Karmutsen volcanics and Kunga sediments are intruded by large "post-tectonic" Cretaceous intrusions of intermediate composition. These intrusions were either forceful, or were emplaced mainly in anticlinal structures. Minor amounts of other post-Kunga rocks do outcrop, including some Jurassic Yakoun volcanics, Cretaceous Longarm sediments, and locally abundant quartz-porphyry dykes.

Rock types directly observed on the Huston claims (much of it in float) include andesite, quartz porphyries, feldspar porphyry, rhyolitic tuff? massive rhyolite, cherty tuff, basalt, and argillite.

Mineralization: In the Jedway area as a whole, magnetite skarn deposits predominate, with copper as a minor but locally significant constituent. Both clearly conformable and clearly cross-cutting deposits are present. The most favoured locations are at or near the Karmutson/limestone contacts. In several cases the loci of deposition seem to have been in thin lenses of limestone in the upper Karmutsen. I favour the hypothesis of syngenetic deposition with later skarnification and partial remobilization of the iron and copper.

In a few cases, chalcopyrite, disseminated in skarns, is the principal mineral of interest. In one case (Lucky Seven) the showing is a true sulphide vein from which shipped ore graded 10% Cu, 1.5 oz per ton Au and 5 oz per ton Ag.

Gold contents are only reported in a few cases, but its presence in small amounts in the known showings is probably more common than the old reports would indicate.

There was, for example, at Tasu, 76 km to the NW in qualitatively identical setting, 0.02 oz per ton Au in the Cu rich magnetite, and one report (~~Tom~~ Jim McDougal?) of Au in stream sediments nearby.

Geochemistry: Geochemically anomalous Au values, many of which have good amplitude, are common in the area south of Jedway, that is, on the Huston claims. They may be even more common north of Jedway on the Archie claims, since Placer Development optioned the Archie ground in preference to the Huston.

Anomalous rock samples include quartz porphyry, drusy quartz breccia, and magnetite. Arsenic highs are commonly associated with the Au.

There is a strong implication of metal zoning between Fe, Cu, Au, and As but the data is insufficiently even distribution to confirm the zoning.

Conclusion and Discussion: The Huston property, in itself, constitutes one of the better Queen Charlotte gold property submissions. This conclusion is substantiated by the widespread and well-grouped geochemical values in an active geological environment.

There is, however, an additional value attributable to the property. This is that it provides an opportunity, perhaps for the first time, to study the relationship between Triassic iron and gold deposition. The proximity of these elements in this area facilitates study, and at least some of the ground work has been done, in terms of "old" information.

On the negative side we must consider the possibility that the geochemical values are an expression of skarn and/or vein mineralization, and do not have any low grade Au potential. Although this is a very real risk, the general source of the Au may be relatively easy to identify at an early exploration stage.

Exploration on the Huston claims could involve the following:

(1) Combined soil sampling and magnetometer survey, using the latter as a partial anomaly filter.

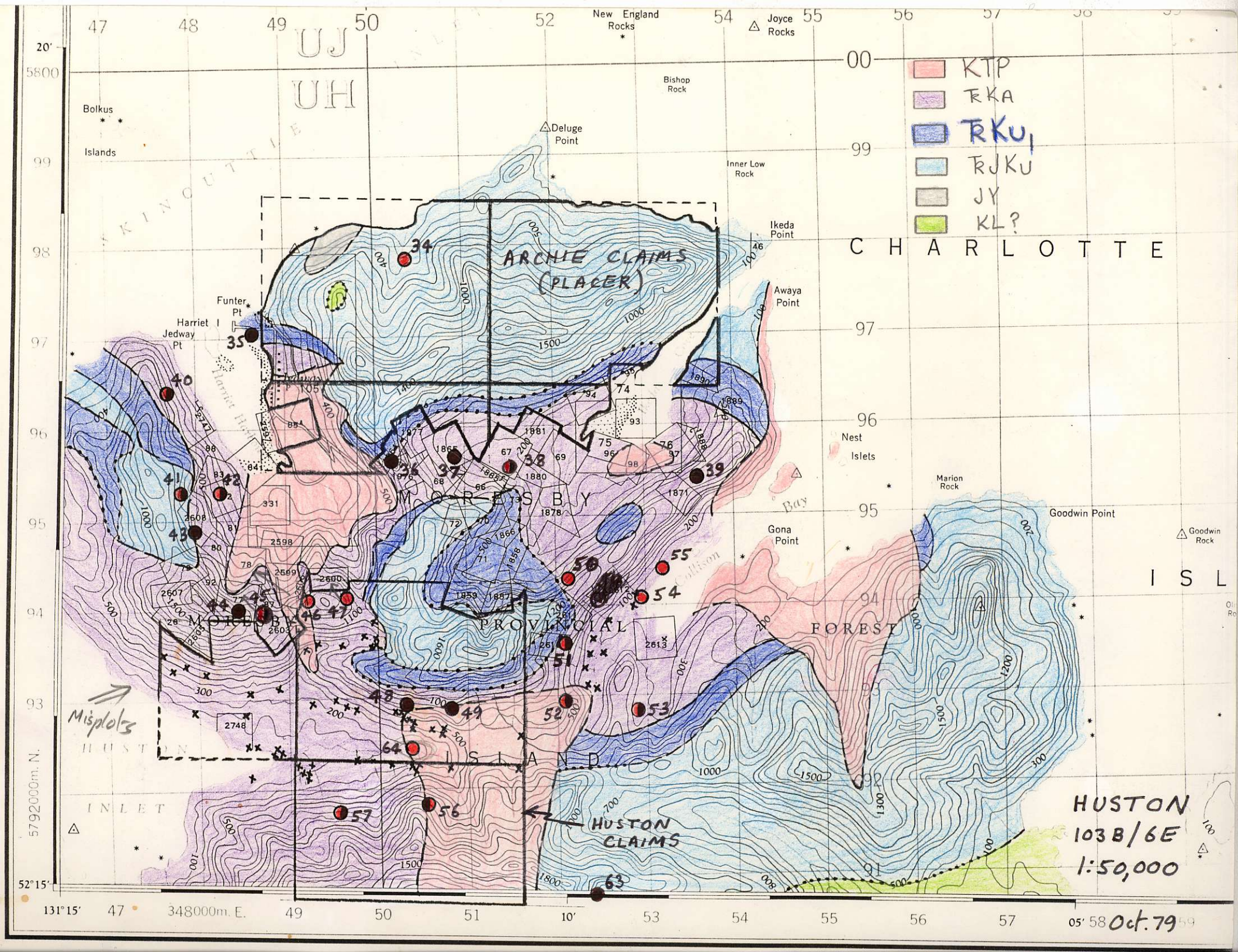
(2) Early identification of suitable low grade Au host types by thorough rock sampling.

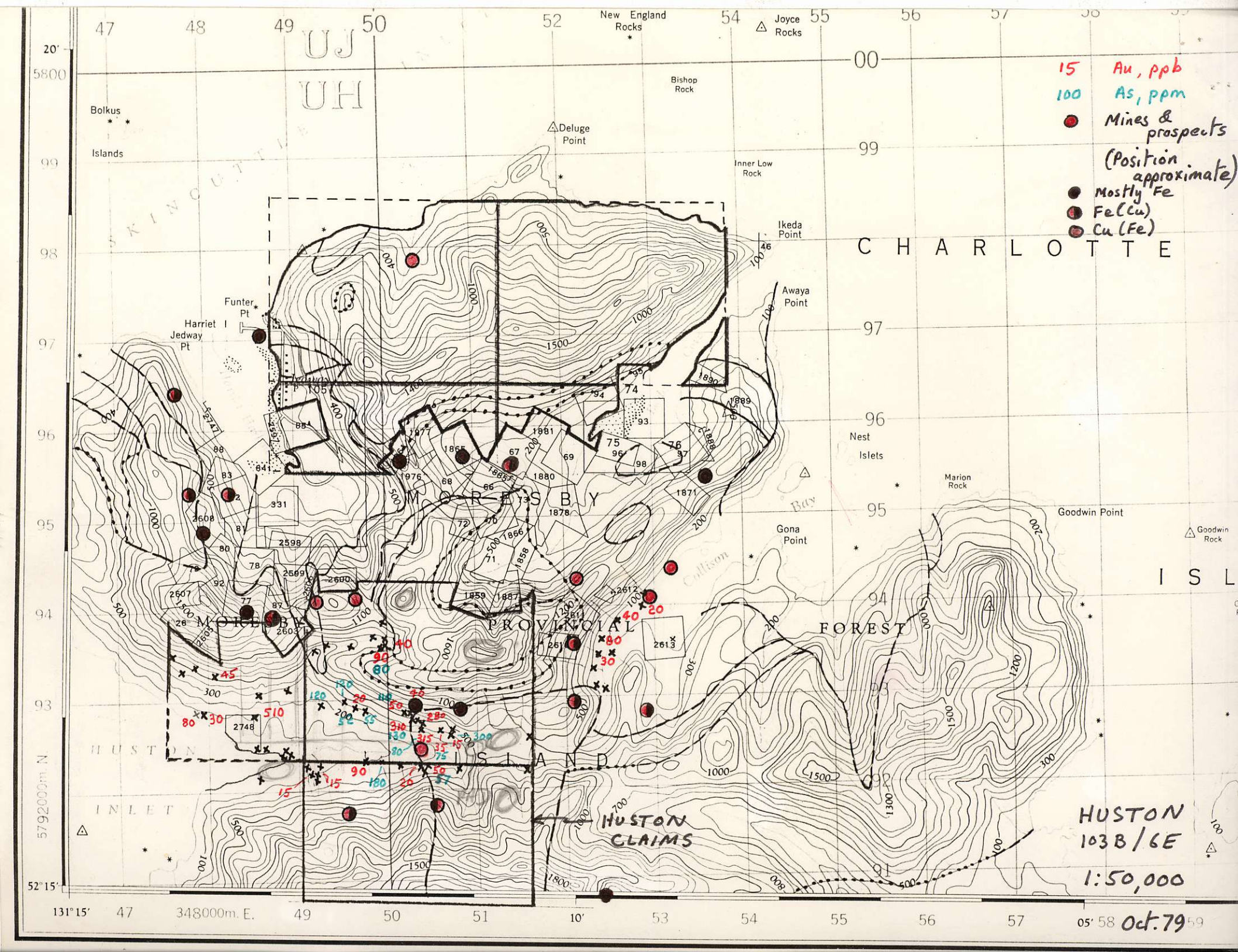
(3) Data compilation for the area to delineate possible zoning. A peninsual-wide "regional" program might be warranted.

(4) Cooperation with Placer Development to share data between the Archie and Huston claims.

D. A.

D. Arscott


KTP
TrKA
TrKU
TrJKU
JY
KL?
ARCHIE CLAIMS (PLACER)
HUSTON CLAIMS
CHARLOTTE
ISL
MORESBY
PROVINCIAL
FOREST
ISLAND
Bolkus Islands
Deluge Point
Bishop Rock
New England Rocks
Joyce Rocks
Inner Low Rock
Ikeda Point
Awaya Point
Funter Pt
Harriet I
Jedway Pt
Nest Islets
Marion Rock
Goodwin Point
Goodwin Rock
Gona Point
Misplolz
HUSTON
103B/6E
1:50,000
Oct. 79


15 Au, ppb
100 As, ppm
Mines & prospects
(Position approximate)
Mostly Fe
Fe(Cu)
Cu(Fe)
HUSTON CLAIMS
HUSTON
103B/6E
1:50,000
Oct. 79
CHARLOTTE
ISL
MORESBY ISLAND
MOSELEY
PROVINCIAL FOREST
New England Rocks
Joyce Rocks
Bishop Rock
Deluge Point
Inner Low Rock
Ikeda Point
Awaya Point
Funter Pt
Harriet I
Jedway Pt
Jedway
Nest Islets
Marion Rock
Goodwin Point
Goodwin Rock
Gona Point
Bolkus Islands
HUSTON INLET
SKINCUTTLE
Collison Bay
348000m. E.
5792000m. N.

GSC Bull 172, 1969

Local Geology (Jessie)

Sutherland-Brown and Jeffery (1960) discussed the geology of the southern Queen Charlotte Islands. The geological setting of the Jessie orebody was briefly described by Jeffery (1959) and Sutherland-Brown and Robinson (1961).

Fine-grained, dark green or black amygdaloidal andesite of the '*Older volcanics*' *group* are the oldest rocks exposed in this area. These rocks are probably correlative with the Karmutsen Group on Vancouver Island (Table I). As seen in thin section, plagioclase (An_{59}), chlorite, and opacite are the main constituents of this rock. Magnetite occurs largely as crystallites, a condition caused by rapid cooling that does not allow the initial crystallites sufficient time to arrange themselves into euhedral forms (Schwartz, 1929).

Massive grey limestone of the *Kunga Formation* conformably overlies this andesite. In the type section on Kunga Island this member is 550 feet thick, but in the mine area it is only 60 feet thick. Thin-bedded black limestone, calcareous argillites, and siltstone, all of the Kunga Formation, lie stratigraphically above the massive crystalline limestone.

The Jedway stock, of about $1\frac{1}{2}$ square miles surface area, outcrops east and south of Harriet Harbour. The intrusive contact dips about 40 degrees northeast under the Jessie deposit, but it is essentially horizontal in at least one locality farther to the southeast (K. Fahrni, company geologist, pers. com.). The rock is principally hornblende diorite, considered to be Late Cretaceous or Early Tertiary (Sutherland-Brown and Robinson, 1961, p. 13). A typical specimen collected in the mine area is quartz monzonite with a mode: plagioclase (An_{45}) 33 per cent, quartz 28 per cent, orthoclase 25 per cent, hornblende 13 per cent, accessories 1 per cent. A chemical analysis of this rock is given in Table VII, No. 7.

Regional mapping by officers of the British Columbia Department of Mines and Petroleum Resources has shown that the Jessie deposit lies on the north limb of a broad anticline that trends approximately west-northwest (Sutherland-Brown and Robinson, 1961, p. 13).

Geology of the Jessie Deposit

Stripping had reached only the uppermost tip of this deposit when the writer visited the property in August, 1962. Exploration was still in progress, and the geological setting of the orebody was not completely known at that time. A brief description is given here using data not only from the author's observations, but to a large extent from company files and conversations with company geologists. Geology in the pit and a vertical section through the main ore zone are shown on Figure 16 (*in pocket*).

The deposit consists of several tabular bodies developed in andesite below the lower limestone member of the Kunga Formation. These bodies lie about 100 feet below and roughly parallel to the limestone contact. They strike northwest and dip 35 to 45 degrees northeast. The Jedway stock is from 1 foot to more than 150 feet below the ore lenses.

The section (Fig. 16) shows the massive nature of the main ore zone; farther to the west, this body digitates into a number of ore lenses each 20 to 60 feet thick. Chlorite is a common mineral both in ore and adjacent country rock. Garnet skarn

GSC Bull 172

- Tasu Deposit

limestone contacts are abrupt and free of silicates. Sulphides, mainly chalcopyrite, occur with magnetite, and a distinct zoning of these sulphide minerals is evident. Copper varies from 0 per cent in the No. 1 orebody (in greenstone) to just over 2 per cent in the No. 3 orebody (in limestone). Pyrite increases with decrease of chalcopyrite, thereby retaining a constant sulphur content in the deposits. Total sulphur content of the three bodies ranges from 2 to 3 per cent. Because the Fe/S ratio in pyrite is the same as in chalcopyrite (0.87), the increase in copper toward the No. 3 zone points to an affinity with limestone rather than a change in the iron or sulphur content within the deposit. Chalcopyrite in the No. 3 zone was originally exploited during 1914–17. Production records show that 5,180 tons were mined and contained 165,566 pounds of copper, 1,408 oz. silver, and 94 oz. gold.

The Tassoo deposit has these similarities to other contact metasomatic magnetite deposits on the west coast:

1. It is in Upper Triassic limestone and volcanic rock.
2. Magnetite is the chief iron mineral.
3. The deposit is associated with a fold structure.
4. Garnet skarn has formed in and around the orebodies.
5. The abundance of sulphide minerals, particularly chalcopyrite, increases toward the limestone side of the deposits.
6. Skarn has developed to a much lesser extent where the deposit replaces limestone.
7. Chalcopyrite carries substantial amounts of silver and gold.

On the other hand, the Tassoo deposit differs from the usual type of contact deposits in the following ways:

1. It is decidedly layered, especially in the volcanic rocks where it consists of four or more subparallel tabular bodies. The reason for this layering is not apparent.
2. It is associated with the San Cristoval batholith, which because it is well-foliated, is considered to be syntectonic (Sutherland-Brown and Jeffery, 1960). All other plutons considered in this survey of western British Columbia magnetite deposits are massive and therefore thought to be post-tectonic.

Selected Bibliography

Anonymous
1959: The Tassoo iron property; *Western Miner*, October, 1959, pp. 38–44.

Bacon, W. R.
1956: Tassoo; *B.C. Dept. Mines*, Ann. Rept. 1956, pp. 125–127.

Patterson, R. W.
Economic geology of the Nos. 2 and 3 orebodies, Tassoo, British Columbia; M.Sc. thesis (*in preparation*), Univ. British Columbia.

Sutherland-Brown, A.
1961: Tassoo; *B.C. Dept. Mines Petrol. Resources*, Ann. Rept. 1961, pp. 11–13.

Sutherland-Brown, A., and Jeffery, W. G.
1960: Preliminary geological map of the southern Queen Charlotte Islands, British Columbia and notes on the geology; *B.C. Dept. Mines*.

1979-10-05

1907 8 9 11 12 13 14 15 16 18 23 25 26

NOTES

JEDWAY AREA DEPOSITS

34	Lucky Seven	50 cm wide vein. 42 tons shipped, containing 60 oz Au, 218 oz Ag, and 8,336 lb Cu.
35, 36	Jessie (Jedway)	- Magnetite, skarn, and minor sulphides. - 2-4 ~~M~~ 4-3 tons shipped, containing 62% Fe and minor Cu. 1962 to 1968 - Ore essentially concordant with bedding over 260 m in 3 bands. (1) 7 m thick, 40 m below Kunga contact. (2) 20 m thick, 50 m below Kunga contact. (3) 8 m thick, 80 m below Kunga contact. There is some possibility that the ore replaced limestone beds at these stratigraphic positions.
37	Adonis	Magnetite in limestone lens or lowest Kunga limestone. Reserves + production: 244,000 tons.
38	Lily	3 veins, subparallel to each other and to bedding close to Karmutsen/Kunga contact, carrying pyrite, chalcopyrite, magnetite, pyrrhotite and minor sphalerite. 14,780 tons mined, containing 1646 oz Au, 27,732 oz Ag and 1,265,581 lb Cu.
39	Rose	Magnetite skarn lenses near or at Karmutsen/Kunga contact. Reserves of 0.1 to 1 M tons @ 40% Fe with very low Cu.
40	To go	Cu and Fe in Kunga.
41	Modoc	Cu Fe in dyke-like body in Karmutsen.
42	Reco	Magnetite with pyrite and chalcopyrite veinlets in Karmutsen. Body 2 m x 25 m, averaging about 1.5% Cu.
43	Blue Belle	Pipe-like lens of magnetite at a limestone/Karmutsen contact. Lens is 3.5 m x 12 m. Estimated reserves 15,000 tons.

44	Magnet	Lensoid, skarn-poor, body of magnetite near or at Karmutsen/Kunga contact. Reserves: 160,000 tons of 60% Fe with very minor Cu.
45	Copper Queen	Magnetite lenses with 1 to 4% Cu, some clearly bedded. Main lens is 12 m x 8 m x 3 m.
46 on Hw	Moresby Island	Mineralization consist of: (a) a small magnetite body. (b) a zone of disseminated chalcopyrite over 10 m x 60 m. Both appear to be in a limestone lens at a quartz diorite contact. Chip samples averaged 1% Cu, 1oz/ton Ag.
47 on Hw	Eagle Tree	100 m linear showing at Karmutsen/quartz diorite contact, consisting of massive and disseminated bodies of magnetite, pyrite and chalcopyrite. Cu content locally exceeds 2%.
48 on Hw	Ida	Dyke-like body of magnetite, 60 m x 8 m.
49 "	Hercules	Magnetite at Karmutsen/quartz monzonite contact.
50	Lotus	Pyrrhotite with pyrite, chalcopyrite, and arsenopyrite at Karmutsen/Kunga contact. Body averages 10 m in thickness and grades about 0.75% Cu.
51	Thunder	Two types of mineralization, one clearly conformable, the other pipe or dyke-like. Mainly magnetite but locally significant pyrite and chalcopyrite.
52 and 53	Meal Ticket and Maple Leaf	Dyke-like body of magnetite, pyrrhotite, pyrite, and chalcopyrite. Copper content 1 to 2%. Host is Karmutsen.
54 and 55	Oceanic and Wireless	Mineralization occurs as copper-rich beds in a thin inter-lava limestone. Shipped, sorted ore was 32 tons containing 1973 lb of Cu, 19 oz of Ag, and more than 14 oz of Au.

56	on Fig	Plunger	Two bodies (1) blob-like magnetite and (2) planar magnetite-skarn with pyrite and chalcopyrite. Both are at or near the Karmutsen/quartz monzonite contact.
57	"	Ivan	Cu and Fe in Karmutsen.
64	"	Hope	Dyke-like sulphide skarn grading 2.7% Cu over 3 m. Hosted by quartz-monzonite, near its contact.

Fe in Q.C.I.

REFS

GSC Econ Geol Ser. #3
Fe Ores of Can.

BCDM Bull 54

Ann Rep. 1959 p 12
" " 1961 p 15