

801264

NORCAN

If qualifying rept required
refer to L.M. Watson, 1968 - good
summary.

④ - S.S. HONTER, OCT. 20, 1966 (follows Admser's geophys. report ①).

* Incl assay plan of Santa Maria trenches @ 1" = 40' -
take this along; possibly base check-sampling on this
for 'substance' within own report.Includes old properties War Eagle, Santa Maria, Duchess, & Evening.
- target for 1966.
Notes ground E.M. & S.P. confirmed Submac. I.P.

① Extensive soil sampling on a 200' line grid over War Eagle & Santa Maria.

② { War Eagle geochem on 2000' x 6000' grid w 540 samples.
Santa Maria " on 2000' x 8000' " w. 450 samples.③ { Bulldozer trenching (a) War Eagle 3 for total 2500' x 8000 sq. ft.
" " (b) Santa Maria 8 for " 4700' x 22,000 sq. ft.④ Dia. drilled contract for 3000' on Santa Maria zone; results on
hand for 2 W-E holes @ -45°.⑤ Geol. mapping done all trenches and over War Eagle & other sects.
1966 results:I. Norcan property has an extensive area within which
worthwhile targets evidenced for expl'n (incl past production)(a) Santa Maria incl 2 min strata sep by a T dyke + 2000' ^(to) infer length
pilot drill results show persistence to 200' depth.

Hunted Trenching → vein shear incl. high grade Ag-Cu up to 16g + 8.5% respect

SANTA MARIA	Trench No.	Width	Ag, oz.	Cu %
F.W. Vx (EAST)	1.	63.	0.50	0.58
	2.	70	0.29	0.69
	3.	32	1.77	0.29
	4.	20	0.24	0.31
HW Vx (WEST)	2.	20	0.23	0.71
	3	12	0.82	3.35
SANTA MARIA	4	8	1.81	4.54

(L.M. Watson sampling): Richest @ 50' S. of old shaft
Santa Maria F.W. Vx. - Tr #3; 24' @ 0.14% Cu
HW. Vx. " 10' @ 1.83% Cu.

Cont'd. ④ - S. J. Hunter:

Drill Hole:	"Intersect." Ft.	Ag, oz	Cu, %
Santa No. 5	70-80'	1.76	4.7
Maria	90-100'	0.19	0.51
	avg 70'-100'	0.65	1.74
" No. 6	avg 150-176'	1.04	1.39

Geochem

(a) Improved anom. (Cu) values @ conservatively high level.

(b) Both Santa Maria & War Eagle anomalies areally extensive - particularly if threshold-Cu (100-199 ppm) areas are considered War Eagle Anom's - I.P. & Geochem.

West anomalies have good surf. indices Cu anomaly
 East anomalies rel. to 1000' x 1400' gossan (in ^{figured} stream canyon)
 with high geochem (> 1500 ppm Cu) and 55 MS. chgly.

* A grab sample of silic-pyritized rock in the Cr. canyon → 0.4% Cu.

Duchess has extensive old unyielded workings.

Henson Basin prop (NORCOP?) has an untested In deposit.

RECOMMENDS:

1. Continue to drill Santa Maria along strike @ 200' centers over 1200 length w 3000' d.d. hole.
 2. Dia Drill War Eagles large (east) gossan anomaly (2000')
 3. Complete add'l 5 trenches on Santa Maria E & N-S.
- Total program estimated to cost \$ 157,000.

HISTORY - up to report

Hennecott Copper, in 1952 did considerable trenching on site of 20 min. on W. side of Henson Basin; price decline (4) terminated exploration.

GEOL. - W.S. Stevens - a syncline bisected prop along Henson Cr; Ely parallel subed E-W, NW-S.E., & N-S faulting recog. & mapped.

Monlin Fe sulph & oxides w. var'l Cu assoc. w. silica & quartz veins.

* Could rep. cap over stock; (deep. I.P. & drill?)

Intrusives predom trend N70E & N. dip.

Layering (& monlin?) in valley is N-S. w east dips.

Cu-Ag w
 Intrusive
 affiliates * On Santa Maria zone ^{steep} phylite-ll dyke w ground & aplite
 Intrudes tuffs & breccias * Steep shear & silic margins cont. Cu-Ag

cont'd (4) - S. J. Hunter - NORCIX

Mineralization

(A) War Eagle dissemin. cp. ^(not much) on siliceous structures - no local intrusive affiliations? subtle intimation = a lgr. porph. Cu deposit.

(B) Santa Maria - mas. cp. + chalcocite in vein structures and where mas. min. occurs in shears, dissemin. Cu also found. min. on steep dyke margins. Hunter sees potential for commercial vein structures on H.W. veins and possibilities for low-grade tonnage on the F.W. vein.

S. J. Hunter (5) Report: May '67 - same data as for (4)

Duchess zone notes much trenching over 3800' length.

Telkwa Mining Co. + C.M. & S. 300' on 4825 lev. + 971' on 4640 lev.

on 48425 they opened a 100' x (4'-5') sect. of Ag. 2.3 g; Cu, 4.3% on 4640 much lower grade values obtained.

Evening zone surf trenches indicate min. over 1500' length to widths of 30 ft.

1966 program incl. 3712 of explor. drilling Santa Maria + War Eagle zones, geophys., geochem. + trenching (to order).

Results: Santa Maria 1700' long, up to 70', 200' depth.

War Eagle 2000' x 1500' (cf. (4)) ground + lgr. Cu values O.K.

→ * check ground textures.

See p. 5 for prelim. ore reserve estimate.

Note sections in pocket re drilling + interp. Santa Maria zone.

NORCATH.

⑥ - W.G. Stevenson Report - Sept 5, 1967 - emphasize geology
Field work Aug, 1966 & Aug 20-25, 1967.

Claims appear well stated; did not personally investigate title or
status of any of 255 claims & A's.

History prior to Norcan = Santa Maria ^{(1917)-3007. ac. or.} & Cominco in
the Duchess (1928); Kennecott, 1952, surf. explor'n program.

Dr Allen Pawley report (review of old lit.) in 1966 & S.J
Hunter wrote a qualifying report;

W.G.S. ; Aug 14-21 /66 mapping geol over War Eagle & Santa Maria.

Report contains (bound) geological maps of
War Eagle zone - - lithol., alt'n, trenches, mind'n.

Duchess Und'ld. Upper & lower tunnels. } mainly
Evening prospects } veins & faults

Gen Geol. - Thick pile of (Hagerton) tuffs & flows. - extensive
low-grade regional (ep-chlor.) alt'n. Small irreg dykes
(felsite, s.g. di, rhyol, diabase & basalt) - seen column & top as
volcs. & difficult to distinguish & identify.

2 large prominent ^{chromite} yellow-brown gossan zones also on prop.
contained magnetite in silic'd zone & is essentially Fe-sulphide;
did not recognize any remnant upper mind'n (geotherm. ev.?)

The rocks in the gossan zones are similar to host rocks of
many high deposits in Western Canada.

Mind'n essentially Fe sulph. & ox. with minor
amounts of Cu sulphide & carbonate - assoc w silicif'n
and quartz veining in subordinated faults & fissures and
to small irreg. & indistinct intrusive dykes & sills,
which appear to have provided channel ways for
this mind'n. - W.S. - Pete's idea that pres gossans

rep volc-cap region of a buried stock or brecc zone
so that deep, high-power L.P. (& deep drilling) indic.
(Study alt'n relationships in this regard).

Duchess - 80' x 15' good ore seg in upper tunnel but 2
drill holes did not locate any downward extension (oblit. by
rust)

NORCAN

⑥ - W.G. Stevenson cont'd:

Jobber: prom gossan developed on an intrusive rhyolite (halo?) in apperall Resulphide but no vis. Cu or Mo.

Conclusions (W.G.S)

- 2. Cu mineral related to faulting & fissuring & appears to be assoc. w. intrusive sp.; Chlor. ep. volcs + greenschist facies
- 3. Cu mineral widespread but nowhere exposed in sufficient concentrations as to be considered ore.
- 4. Gossan zones on War Eagle & Jobber Ridge are large and significant and suggest a possible relationship with concealed mineral deposits (again), indie deep h.p., I.P. & drilling - this a gamble don't want to take, such as one at Hudson Bay mtn; is it a geol gamble or geol bet. equates w prof gamble personnal bet.
- 5. Norcan geol. geophys & strat. info not used
- 6. Selmsers geophys survey (low power equip) has pointed out anomalies which have not been adequately tested.
- 7. geol-geophys work has indicated areas where addnl work warranted.
- 8. Lim. amt. d.d. accmpl indicate upper mineral at surface is irregular, discontinuous, & difficult to trace.
- 9. No new veins worth exploring exposed by recent work.

Recommendations

- 1. Compile, study, existing data for guide info & indications
- 2. Discontinue d.d. until this study completed.
- 3,4,5, gen. nature only;

Note Payer advises his 7.5 Kw. I.P. unit would give 1000' depth test, using 2-4 amps and if rock resistivities did not exceed 200-400 ohm metres, Salt water on electrodes.

O.C. B. Selmsor report, Aug 3-19, 1966: } need magnetometer
& geochron. to supplement
I.P. - EM coverage here.

Incl. airborne E.M. survey, I.P. survey (Selmas),
ground E.M. & S.P. surveys by Geocal Limited.

Air borne E.M. of limited value. rotor-induced field too variable.

ground E.M. & S.P. relevant to local vein metal'n.

Santa Maria prop. (und'g'd layers) @ 4000' el. in creek bed; ~ no surf. exp.

* War Eagle property mostly on plateau @ 5000' el.; east portion steep.

Selmas shows map I.P. on this

Area underlain by Hazelton andite & rhyolite flows & breccias.

Some upper Cr. (?) intrusives in (general?) area - some
satellite bodies may occur in immediate area.

Shearing evident; N.W. - S.E. @ 60° S.W. (see also @ Santa Maria)

* Min'l'n observed in trenches and at (und'g'd?) whys rel.

to bedding or sheet fract. in qz porphyry w/ much silicification
and carbonatization. Chalcopyrite = main mineral - w/
conspicuous copper carbonates.

Sharpe 250 E.M. used, 200' Trans-rec's sep; occ. 100' sta's.

I.P. survey - O.B. highly resistant on War Eagle

→ Detailed topog. map @ 1" = 1000' incl. w. report -

War Eagle I.P. denoted strong (py) I.P. anomalies at
east end of grid - poss. those drilled by Bethes.

Selmas O notes & fract pattern (tension) assoc. w. map I.P. areas

* Need geochron. to correlate with War Eagle I.P.

NORCAN REFS

② Geoterry Report. For Bethes

1. P. Survey - Hunted pulse-type, 2.5 KW, power supply and transmitter w. Newmont - 5 circuit receiver used in the "remote" sense

1(a) Beyko Plateau Grid, Plate 1(a) (large sheet incl. EX gps.)

- no significant 1. P. snow zones discovered - Neglect this

1(b) War Eagle Plateau Grid - Plate 1(b) (small sheet)

This 1. P. survey forms a part-check of the 1966 Sulmac survey (Sulmac rept D) - confirms Sulmac survey; The snow responses at the east end of line 45 are related to a known zone of dissemination.

Lines 6N + 12N across known mineralized shear zone, respectively S + N ends of shear zone; On both lines narrow zones of mineralization indicated @ 50' east of sta 10

Summary - Sulmac survey confirmed.

- U.S. feels higher-power 1. P. coverage warranted (Barringer-Hunted 7.5 KW) in view of highly-resistant nature of overburden on War Eagle (main prospect zone); This, if feasible should also be supplemented by ~~(mag)~~ ^(u-mg. + Ag) (geochem) coverage.

Possibly extension of 1. P. coverage to east and south required.

NORCAN

③ Allen P Pawley - April 1966 - early report; property not visited - main substance is historical;

Duchess - @ head of Hanson Cr.

perpetuated by 2 tunnels.

True strike ore zone \approx N 5° W.

First 90' of upper tunnel in ore avg 4-5% Cu, but ore zone disappeared to north.

Lower tunnel - only dissems sp. w some py.

Open at el 5700' 4' dyke w sulf on margins.

Evening - near head of Hanson Cr. @ El. 5500'

- not important.

Santa Maria - a replacement ore body in contact zone of two different rock units - both v. calc.

Vein 4'-7'; avg 5½' & strike N-S. dip 45° @ surface steepening to 60°-70° @ depth.

Ore: chalcocite & bornite; only sparse pyrite.

mal. Ag & limonite plentiful. - 2 small stopes \rightarrow \pm 239 tons high grade. (17% Cu).

NORCROSS

⑦ S. J. Hunter. Dec. 19/67 :-
member of py, tetrah, py. + hematite, (Carved into chalcocite also).
1967 explain formation Duchess + Evening zones - (epidote finance!)

⑧ J. M. Watson, Nov. /68 - for Bethup.
Drill hole N-1 (753') on lang^{#6} - (ie ± 1000' - 1500' S.E. of War Eagle
gossan and iron zone - why?) - drilled to test a gossan.
Drill hole N-2 on SQ 30 -

Mag survey on War Eagle inconclusive.
Bethup det. l.p. - mainly on Beyko Plateau grid, + check (4 lines) on
War Eagle - confirmed.

War Eagle intrusion = (spitzed) felsite + pink porphyry - prob. steep
west dip; locally some accessory muscovite, epidote + titanite.
Santa Maria intr. = thick, tabular, + strike; buff g2-py core
w. flashing aptite - felsite.

In Duchess, Evening, + War Eagle areas most of the low
occurrences are related to the lamprophyres.

Veins - incl. War Eagle, S.H. + Santa Maria

Veinlets - Cp. py, spec. + mal. assoc. w. g2. lamprophyre assoc.

Dissem. - usually sphal + py; Cp rarely except near evening adit

Santa Maria zone N-strike dacite tuffs w. concord into dip 50°W

Vein intermittent exposed for 1100' length - pinching out at both ends;
width from a few inches to max 29', richest @ 80' S of old shaft.

P.W. vein = Santa Maria; - tr. #3; 24' wide @ 0.14% Cu; 1.33 Ag.

N.W. vein = S.H. - tr. #3; 10' @ 1.83% Cu; sp. Cu - Ag.

War Eagle: a shear + fract. fault type member.

* 2 prominent limonite, or weak gossan zones at N. edge
of plateau have been formed over red small py zones which
are almost + barren of Cu - No Porph-Cu type alter no bfls
no KF
no Rite, Ser
etc.

* Main showing is War Eagle Vein, N-strike, W-dip:
Tr. #23 { F.W. vein 6' @ 0.07 Cu; 0.17 Ag.
X-sec } Vein 30' @ 1.22 Cu; 0.58 Ag.
N.W. vein 20' @ 0.18 " ; 0.16 Ag
lampr. 20' @ 1.42 " ; tr. "

Tr #22 - Vein - 10' @ 1.42 " ; tr. "

Norcan — July 28/70

Mem Rept. 1966 Jher, PR, SQ. Ref. mem Rept - No visit
Area 12000' x 15,000' geol mapped; Geol. & Submar.
Ten RX-BX d-d holes totaling 5350' drilled.

Mem Rept 1967 - Jher, PR, SQ; by V.H.G. Prots. D.C. Dem.

- good regional geol. - good index maps.
- Duchess described in detail, part of this follows:
A N-trending shear zone w. cp. py, kt, qz (also tetrahedrite)
Shear at contact of g. epidote & cordierite on W. and fine-
grained purplish brown to olive-brown tuff to east.
Width variable up to 12'.

Highly broken & shear, buff, alt. field of dykes cut v.les but
carry only minor amounts of sulphides.

Approx 180' east of lower part of a m. shear zone at
N30E & steep dips - reported low Cu-Ag values.

At 500' west of Duchess adits a m. fault at N10-15W,
70° W exposed along bottom of a steep gully w.

disint. zones of blue-gray breccia. A zone of qz-
garnet-epidote scharn extends from W. side of
gully eastward 500' to workings - easternmost
exposure found at W. end of upper bulldozer trench.
Fault contin. from cirque W. of Evening L. (X) to Princess
showings (S). This forms a predom. fract. system.

Generation of this set of fract. pre-dates mine & served
as hydroth. main & alt'n agencies (i.e. scharn).

Postulates Fault zone (NE strike, S.E. dip) offsets vein below upper
Duchess level.

Evening - disint. mineral in on NE-E trend shears w. mod. N dips
irreg. shears w. qz replace & sulph. in ep-chlor tuffs.

Santa Maria - qz veins w. cp, py, cct. & br. - 1200'

Vein strikes N30W & dips S.W. at moderate to steep
angles; vein panel 250'-300' wide w. in intensely alt. &
sheared pyroclastics (incl. lapilli tuff, v.les by, andes or into,
alt. sp. min. dykes parallel shear structure. In addition
to strong shearing & alt'n in vein zone there is consid.
saurinite alt'n of C.R. accomp. by sp. silicified
sulphide veins.

Fracturing & shearing on N-S structures displaces &
complicates the picture.

MM 1967 - cont'd.

War Eagle:

in andes-basaltic lavas, tuffs & volcanic breccias (to 12")
layering varies E-W to N. w moderate N. N.E + E dips
Fls mineral = scattered narrow shears trending N.E. &
N.W. & minor py, cp, kt, km, & locally low-iron sphal
(zoning?) (look for Mn stain assoc. w ZnS!) a
prominent shear trends N50-60W. across cirque
wall and is marked by a 50'-75' zone of reddish
stuff w abundant Fe Ox stain & minor py & very
minor cp.

Princess

work line to that done by Kennecott in 1952. (ZnS!)
mineral = several narrow shears & veins of kt, iron-rich
sphal. & cp in a gangue of white ^(calcite) ct. & qz.
Host rock is a strongly sh. & ep. f. gr. greenish lava.
The mineral zone occupies a width of approx.
200' along the S. rim of the cirque and marks a
N-trend sh zone which is the S. ext'n of
the fault found east of the Duchess.

MM 1968 - Bethel.

* I.P. & mag. surveys run; silt & soil samples
taken for geochem. 22 trenches (tot. 14,200') bulldozed
and 7 bedrock open cuts blasted; 2 holes totalling
922' were dir drilled.