Au Sb

2 qtz - [illegible]
2 Au : Ag
W [illegible]
[illegible]
[illegible]

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MEMOIR 31 - WHEATON DISTRICT 1912

DD CAIRNES

Au	- Ag	Vns
Sb	- Ag	Vns
Ag	- Pb	Vns

Contact Meta

M.C.

Hawkeye Gp
Acme M.C
Buffalo Hump
McDonald Fraction
Silver Queen, Gopher
TALLY HO GP
RIP, WOLF MC
GOLD REEF
LEGAL TENDER
LUCKY BOY
GODDELL'S MC
PORTER GP
CHIEFTAIN HILL
UNION MINES
NEVADA MINES
FLEMMING

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GOLD SILVER VEINS Diagram (3), p 90

- occur NW belt 9 miles x 16 miles, majority of deposits in 2 mile wide belt - Mt Stevens, Wheaton mtn, Tally Ho mtn, ~~HODNETT~~ Mtn & Mineral Hill (extends to similar belt in Dorn district)
- others on Mt Anderson RIP & WOLF MC & Red ridge (W & E of 2 mile belt)
- general strike ∥ to belt (∥ to Coast Range Mtns), are steeply inclined dip E 60-90°
- in Coast Range Int., also Mt Stevens group (schistose) chloritic sericite sh & greenstone sh (Swallt)
- in granitic rx are as fissure fillings, consistent in strike, thickness, comp for considerable distances, are 4-5 feet wide over 3000 (+) ft. (Mt And.) vary from inches to 8 ft, up to 1500 ft, average in G 3-4 feet
- vns in sh mineral lenses between foliation & as irregular fissures (∴ connected to lenses), dips vary to SW
- are lenses avg. width 6-8 feet, 20-40 ft long, (Acme MC one vn 30' x 100'), traced as succession of lenses & fissures for 1000'

= Best Vns: McDonald Fraction 2 ft thick
Legal Tender (Mineral Hill) (3-3½ ft thick); drusy vns (Tally Ho has drusy vns)
Silver Queen (Wheaton Mtn) (3 ft thick
Sunrise (Mt Stevens) (max 7 ft, average < 3 ft thick)

- All in Coast Range Intrusives

Faulting - displacement along fissures in Sh & Int v slight (inches - 3 ft)
- slickensides, gouge & (Tally Ho) breccia

Origin - all fissures are along E side Granite batholith (in Granite Rx)
- most ∥ E edge of batholith
- all dip NE, away from Int Centre
- simple system of fissures, no cross fissurings, ∥ general regional structure
- ∴ Likely due to Tension due to ① Batholith cooling ② uplift of NW Yukon in late Jurassic, plus volc activity, Coast Range batholith intrusion

- vns in Sh same origin as vns in Granite Rx

FISSURE FILLINGS

- mainly q, massive cryptocrystalline (Sh) up to coarse drusy (both in G)
- drusy q Legal Tender, Tally Ho vns
- minor calcite
- metallic minerals minor, but where abundant rough alignment // to walls but not such in Sh (irregular)
- Galena most abundant, occurs in all, eg dominates vn MacDonald Fracture & Tally Ho for limited distances ie pockets few feet long up to ?
  finely crystalline to coarse euhedral
- Py, Po, Sphalerite, disc, rare
- Tellurides, Gold Reef MC (Gold Hill), Buffalo Hump Gp (Mt Steven

↙ in pockets mans head up to 900 lbs (Au, Ag)Te, rare
- principal Telluride = Sylvanite, also hessite, petzite, Telluric ochre as weathering product
  Sylvanite 62.1% Te, 24.5% Au, 13.4% Ag
  Petzite Ag/Au 3:1
- Microscopic Free Gold with Tellurides, primary & oxidation product of tellurides, in pockets on Gold Reef, in angular q float near Mt Stevens summit source not found → Con Buffalo Hump
  - galena, disc Au & Sylvanite)

Selected Assays: MacDonald Fracture, Tally-Ho, Sunrise, Rip, Legal Tender & ? $20 - $80 /ton Au & Ag
- gold considerably in excess of Ag

- zone of vein oxidation shallow, no appreciable economic effects (unoxidized minerals at +30 ft), no surface enrichment zone due to weathering

- clay ser ¼"-1" gouge on walls some vns
- Tally Ho - only Au Ag vn & considerable bx
  - fault zone 4-12 ft thick bx & gouge, vn q between bx frags
- Vns: late Jurassic or later earlier than Cretaceous or e T
  : probably assoc & granitic rx that they cut
  : little metasomatic alt assoc of wall rock
  : Granite rx slightly bleached to lt. gy-whitish, softer, few inches up to 2-3 ft
  : Sh - no apparent alteration
- No minerals characteristic of deeper vein zone, lack of pneumatolytic vein minerals ∴ Au, Ag vns belong to upper vn. zone

Tellurides upper & deeper vn zones so possible

Au-Ag Vn Properties (not all mentioned in report)

MT STEVENS : HAWK EYE GP - 2 vns in chl & ser Sh
(Wheaton River slope) - 20" & 3-4' thick
- q galena, cp

: ACME - largest lenticular q lens in Wheaton district
(Mtn top) max 30 ft wide, +100 ft long
- in chl & ser Sh
- most only q, some parts c galena, py

: BUFFALO HUMP - ① short transported q float, diss galena, free Au, Sylvanite
(N end of mtn) ② q vn c Galena, Native Au, in G
ave 2-3 ft thick, max 7, 50 ft min

WHEATON MTN : MC DONALD FRACTION - q vn 313°/NE near vertical, in G
(W edge) - well mineralized argentiferous Galena
sometimes dominate vn material, occasionally distinctly
banded, massive, others drusy
- encouraging Au, Ag

360
47
313

SILVER QUEEN, GOPHER ① ② - ① q vn in G, 3 ft thick, Galena, py
(near McDonald Fraction) ② Irregular q lens in greenstone Sh, max 7' thick
scattered Galena, encouraging Au, Ag

TALLY HO GULCH & VICINITY : TALLY HO GP - ore in bx'd fault zone 4-12 ft thick, one q vn
(W end Wheaton Mtn) along footwall, in G, NW strike dips E 60°-70°
- clayey gouge ½-1" thick, also seams
throughout bx; frags fine to 10", cemented by fine grounds
c v minor (varys) q, qvn 260 ft long 6-20" wide max 36"
- argentiferous Galena in q, lead carbonate
- Assays $9-80/ton Au & Ag ave ~$20 /t
- other vns, some c 6-8" diameter solid Galena

MT ANDERSON : RIP, WOLF MC - q vn in G, 292° dip 80° NE, strong, well defined
(E side Becker Clk, W face Mtn) min length 3000 ft, cut by fg B dy
- argentiferous Galena; better mineralized
portions of qvn $20-$40/ton Au & Ag

GOLD HILL & VICINITY : GOLD REEF - qvn 305° dip 50°-60° SW, in greenstone Sh
(Gold Hill) ave width 4-5 ft, min vertical distance 1000'
- minor py, pockets Native Au, Sylvanite, hessite
petzite, telluric ochre, man's head size to 600 lbs, Au in
secondary; except for pockets minor Au, Ag

: LEGAL TENDER - qvn strikes NW, dip near vertical, drusy q
(N face Mineral Hill) argentiferous galena, diss, fine crystalline;
minor cp, diss; sometimes banded; $30-$40/ton Au & Ag
: LUCKNOW - q mass in Mt Stevens Sh, Chalcocite, malachite
(E side Mineral Hill) strikes NW
- not much known

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ANTIMONY - SILVER VEINS

(Chieftain & Carbon Hills)

- limited to westerly trending belt 1½ x 5 miles, not known if extends further
- occur in Jurassic Coast Range Granitic rx, Chieftain Hill A, Ac & Sx late Cretaceous or eT
- richer Ag ores chiefly in GP
- strike 263° - 308°, most ⊥ dip, on Porter Gp dip NW at 50°-55°
  - Goddell's claim vn traceable for 2000 ft, rest 200 ft or less
  - widths vary 2" to 6 ft max found on Porter Gp 14 ft
- faulting - slickensides present on some, ½ - 1¼" clayey selvage (250°) at Porter vn, displacement unknown, no surface evidence of movement, no Sx wallrock
- Origin: Westerly strike not related to main structural features of district
  : Possibly two or more fissure systems based on strikes (NW & E)
  : fissures in different formations are intimately related (one cause), field relations indicate synchronous origin
  - likely due to compression
- Mineralogy: Sb-Ag vns chiefly q, barite, cal, stibnite, Jamesonite, minor grey copper, Sb-ochre, sphs, argentiferous Galena, arsenopy
- Gangue: q - drusy & massive
  barite, calcite granular, calcite euhedral
- Metallic: stibnite most common & abundant
  : almost all in Porter claims "big vn"
  Morning & Evening MC vn
  Empire some vns
  extreme E end Carson hill vn
  : usually with Sph, often & Jamesonite
  : those high in Sb usually low in Ag
  - mineral content varies considerably: chiefly stibnite to entirely q, galena & grey copper (stibnite & galena Ag bearing)
  - Arsenopy only on Goddell's claim
- Assays: +500 g/t Ag (a few results); ores & grey copper & Galena 100 - 200 g/t Ag
  : "big vn" Porter Claims 50-65% Sb; ore sample 50.40 Ag, 31.4% Pb, 18.75 % Sb & 0.80 Au
  - more found with more than a few ¢ in Au
- Wall Rock Alt: wall rock slightly affected
  Granitic rx: slightly bleached, more friable, max 2-3 ft
  Clastics & A: less affected than Granitic rx
  - both original rock types easily identified
  - zone of oxidation shallow 4-5 ft of surface may be in part due to lack of py
  - no surface enrichment

Genesis: no deep vein type minerals
: no pneumatolytic
: mineral assemblage ⇒ upper vein zone
Stibnite practically diagnostic of shallow vn deposits
: accnt by all known igneous rx more recent than Chieftain Hill ∴ if due to igneous would likely be these
∴ always in/near Chieftain volcs
∴ probable vn deposition in Granitic rx & cooled volcs while underlying magma (producing volcs ←→) was still hot

Sb-Ag Properties

CARIBOU HILL Claims: Paleozoic Gp - ① Porter, ② Empire, ③ Excelsior MC.
② ores in hi Fe Trichic A, decomposed, bright reddish to yellow lith, v. disintegrated, 6-10' masses of near solid stibnite assoc. with more or less Sph, q, barite at 3 or 4 pts
- one vn q impregnated ± sph, Jamesonite
- several other vns 6" to 2 ft thick as o/c
① 6 vns in Jurassic granitic rx, parallel strikes
strike, 283° Dip 50-55 NE
- 'big vn' 14" to 3 ft thick, min 200 ft, chiefly q & stibnite ± sph, Jamesonite, portions 12 to 14" almost pure stibnite; 50-60% Sb
- vn 5' below 'big vn', 6"-12" thick, similar not highly mineralized
- two other vns, 95 to 130 ft horizontal distance from 'big vn', 2" & 6" thick, q ± dirty galena, Egrey, Cu
- 50¢ oz Ag/t; 100 to 200 g/t Ag ± much galena & grey Cu
- most < 50 g/t Ag
- one sample 50.40 oz Ag, 31.40 Pb, 18.75 Sb, 0.80 Au

not from big vn

: GODDELL'S Claims - 2 parallel vns, < 20 to 30 ft apart, as o/c (Inverton R slope Caribou Hill) in gulch, uphill for 2000 ft, in Jurassic 1 mile N Porter MC. Granitic, 263°/near ⊥
- chiefly q impregnated ± Jamesonite, arsenopy, 2' & 2 to 3 ft thick

: CHIEFTAIN HILL MC - Morning & Evening MC: vn in a fissure in A (Tg, greenish) 270/near ⊥
- min 100 ft long, 6" to 1 ft thick, max 5 ft
- across Chieftain Gulch 5 ft thick (2 ft euhedral stibnite - 3 ft q, stibnite ± Sph

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SILVER-LEAD VEINS

- occur in northerly trending belt ~1000 ft x 3000 ft, E face of Idaho Hill (Union Mines Gp), also to S on Nevada Gp
- similar deposit N face Mt. Folle
- majority on Union Mines Gp, 12 vns most ↑ toward centre of belt
- Nevada Mines Gp similar but less galena
- vns all in Hgy to pale gn, generally ss, homogenous appearing feldspathic beds of Jura-Cretaceous Tulsequah series (microscopically typical arkoses but some places ± considerable tuffaceous
- vn in general all follow ∧ of clastic rx; majority vns 348°/60-70° SW
- one very different but was short, in minor fissure
- many places vns are irregular ± indefinate walls cut & embayed by ores, centres nearly all ore
- sudden widening ± to 10" then 3 or 4 ft; some regular 4 to 12" traceable 10 to 300 ft; en echelon structure probable in some cases
- one irregular area ½ ft x 20 ft with roughly ½ as ore
- in average section across centre of area 4 to 8 vns ~ evenly spaced near ends of belt 2 or 3 vns in average

Faulting: no movement detected of vn walls, slickensides, bx, selvage
: must have been minor factor in ore space formation

GANGUE: q massive, (characteristically also) euhedral crystals, irregular distributed geodes or vugs characteristic of ores;
calcite + plentiful inplaces (→ q); always massive & cleavable

METALLIC MINERALS: arsenopy, galena, Sph, py, cp (& oxidation products)
most minor occasional rare

Arsenopy: intermingled ± ore minerals & wall rock frag ments & solid ore masses

Galena: silver bearing, as steel-galena (mass 2 lb), & euhedral (⅛")
: diss in gangue; alone; masses ± other metals
: assoc ± arsenopy

-both can occur as wall rock replacements

Sph: dk brown/bl, massive or foliated;
: as diss assoc. ± galena; occasional ± arsenopy & py & scattered throughout q & cal

Py: minor, occasional cp assoc.

- much wall rock inclusions, irregular, rounded edges; also fingers into ore (microscopic to several ft)

AGE: - Lower or Lower Middle Cretaceous (fossils) in beds cut by vns
- believed genetically assoc ± Klusho Int or Chieftain Hill volc formed after their consolidation to late Cretaceous or T

OXIDIZED: more altered by surface waters than previously described vn types
still v. little oxidation, due to more py
: vns somewhat porous some ores removed

GENESIS: vns follow bedding planes (general)
: lack of definition between walls & ore
: outline irregular, penetrate walls in various directions, & cut structures & bx frags of wk rock
: ores secondary to country rock; q, cal, galena, arsenopy, sph, py, cp
: ore type deposited by solutions bearing gases, & metals

: ores require place/space to deposit
: no movement ∴ not space from faults
: irregular shape ∴ unlikely original space existed ∴ solution
: microscopic evidence space not due to fracturing or crystal growth

- concludes solutioning ⇒ space & deposition concurrent
- vn material source intrusive igneous r/x - either ① Chieftain Hill volcs or ② Klusha ; ① more likely
- upper vein zone

Ag - Pb PROPERTIES

UNION MINES - 12 vns, in arkoses & tuffaceous material in places
∠ 348°/ 60-70° SW
- 0 to samples high of 150 g/t Ag, 50g ave
- max 70% Pb exceptional, small masses solid galena considerable ~40% Pb
- many for Au, some $2.00 high, better portions believed $20/to Au & Ag

NEVADA MINES ; two veins examined, similar to Union but less Galena, mostly q, cal, arsenopy, sph, py, cp

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CONTACT METAMORPHIC DEPOSITS

- limited to NW trending 100 ft x 500 ft; FLEMMING MC
- in Mt Stevens, pre Devonian, Che, lt gn to gy hb Gn near Jurassic GDi contact
- contact-meta ores as replacing bands in Gn near GDi
- Gn rich in lime (high % lime-alkali feldspars)
- Gn bands distorted somewhat, general 316° or ⊥ to GDi/Gn contact, dip 60° to 90° either direction
- largest 30 ft x ? (100 ft ?), nearby smaller bands 4 to 6 ft wide

MINERALOGY: chiefly mag, spec, cp, py, malachite, azurite, cal, q ep, chl, actinolite, yellow grt; exposed in trench : Fe, Cu minerals make up most in centre; q, cal; ep to edge, grades to ⊽ calcareous hb Gn

ASSAY - tr to $2 Au/t, Cu ≤ 1%

GENESIS/AGE - late Jurassic, contact meta

FLEMMING M.C. - (

YE EG 1982

ODD (dropped according to HC) MC EVEN 1-16 ODD 1-20
Dupont Au - Cu Zn Pb 105 D13

- staked 1981 cover Au stream anomalies
- underlain by volcs of Upper Triassic Lewes River Gp included fp ~~Qd~~, B & volc bx/cgl
- 60 ppb Au in fine heavy fraction
- 9 stream, 4 rock 169 soil
- all from one W running stream anomalous up to 1,100 ppb Au in coarse heavy fraction
- Cu Zn soil anomaly merges into Pb-Zn soil anomaly to E
- highest Au in soil at head of creek just W of anomalous creek
- elsewhere Au background or less
- one volc bx sample 100 ppb Au with minor diss py
- in D and a few q vn 1-4cm wide, barren
- one SW qvn 5m x 2m minor cp, 0.045% Cu, 0.62 g Ag/t

NIAD (16)
Archer Cathro Ag-Pb " " 105 D/3

- staked 1981, soil geochem & associated mineralized vn float
- Coast Plutonic Complex equigran. GDI-Qm, NW of Bennett Caldera, cut by A, R & aplite dy & contains meta rock xenoliths
- 37 soils 0.8-2.6 ppm Ag, usually +200 Pb
- 25 recce rock all but those & visible mineralization less Ag & Pb than soils
- Cu stained qvns & tr galena 50.0 ppm Ag & +10,000 Pb

(over)

RAM (58)

Canadian Nickel Co Ltd Zn Pb Ag Sk 105 D 4

- staked 1976 Ram (8)
- 11-58 staked 1981 covering zones of kaolinization, sericitization, carbonatization, silicification of Rhyolitic T qfp
- pre Miss Yukon Group metased, Cretaceous Coast Intrusions & T Skukum volcs, a T qfp plugs

(1) skarn zones, max 15 m long in Yukon Group metas (cg Ma, gn Ck) adjacent to qfp: gn-qtz-fg, Malachite & Tenorite (?) in network of quns; soils ± Mo, Cu
- Sphalerite Galena in ep-diop-gnt-q-carbonate
1.49% Pb, 2.26% Zn, 37 g Ag/t over .3 m (chip)
3.73% Pb, 3.80% Zn 25.4 g Ag/t over 4.9 m (core)
0.82% Pb, 0.85% Zn, 16.5 g Ag/t over 8.2 m (trench)

(2): 3 zones alt in qfp,
- extensive, up to 200 m x 600 m of yellow-brown gossan containing narrow (up to 2m) sheared & bx'd zones ± varying clay, ser & q vnlet stockwork; anomalous basemetals, Ag or in Sb but not Au
- base metal sulfides in one zone

: 1 zone in Rhyolitic volc (bleached)
- believed caused by surface water rather than hydrothermal
- 176 rock samples (64 from a/gossan zones, Cu Pb, Ag, Au, Sb
- Alunite found through dubious field tests
- anomalous Au related to dy & flows of Skukum volcs rather than hydrothermal a