CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
416 W. Congress St., Suite 100
Tucson, Arizona 85701
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

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WONDER, CHURCHILL CO. Reno Sheet

Sources: J.A.Burgess, 1917, The halogen salts of silver at Wonder, Nevada, Econ.Geol.vol.12, 589-593.

W.O.Vanderburg, Reconnaissance of mining districts in Churchill Co., Nevada. USBM Inf.Circ.7093, 1940.

E.A.Ritter, 1909, Ore formation in the Wonder district, Nev. Eng.Min.Jour. 87:289-292

E.R.Zalinski, 1907: Mining in the Wonder district, Nev. Engr. Min.Jour.83:763-765.

Anon.1907: Recent devlopments at Wonder, Emgr.Min.Jour.84:357-8.

REGIONAL SETTING

Structure: Unknown.

Production Belt: In National-Mina high production belt, bolstered by F, Hg, Ba deposits

Lithology: Toward SW part of large volcanic field. Topo map suggests that close to 2000' of volcanics are exposed; about 800' thickness between surface at Wonder and country to east.

LOCAL GEOLOGY

Country Rocks: Complex series of Tertiary volcanics: rhyolite, andesite, dacite, basalt. Wonder rhyolite main ore-bearer; this is the oldest exposed volcanic, at base of section. Basic rhyolite, might be called uqartz latite. (Probably fractured better than aphanitic type).

Structure: Unknown. Wonder lies on W slope of a southern spur of the Alpine range or Augusta Mts.; probably some reference to structure of this range in the literature.

ORE DEPOSITS

A number of veins, most with small silver-gold production, but major production came from Nevada Wonder vein, outcrop traced 1.25 mi. Strike N25 W, dip 75 NE.

Mineralogy; Vein Structure: Gangue consists of quartz rudely banded with feldspar; minor fluorite. Primary silver as argentite; gold native and combined with argentite. Traces of copper and lead.

Oxidation extends to a depth of 1300'; no zinc in this stretch; practically no arsenic or antimony.

Silver haloids: bromo-chloride (embolite), iodo-bromo-chlorite (iodobromite), iodide (iodyrite). No ceragyrite. These succeeded each other in depth in the order named. Minerals associated with the haloids: qtz and feldspar, comparitively small amount of limonite, and wulfenite ($PbMoO_4$).

Gold-silver ratio according to Vanderburg: 1:94. Total production, Vanderburg, 1907-1937, $5,953,000, nearly all in gold and silver; ave. $14.94 per ton. According to Univ.Nev.Bull., Geolo.& Min.Series No.37, 1907-1940, $6,678,000, average recocered grade $14.30 per ton. At present metal prices, grade of ore 1937-

-/-

sent metal prices,grade of ore,1907-1937,would be $27.40 per ton.

The Nevada Wonder vein is persistent,being traced for 1.25 miles; it may be on a fault,becaase it lies in part along the contact between the Wonder rhyolite and intrusive dacite;to the N the vein leaves the contact and is entirely in rhyolite. Width of ore shoots, from a few feet to 30';average 5-6'.

Production: 1907-1940,total production at present metal prices would be about $12,200,000.

CONCLUSIONS

A district with wuch substantial production would not usually become a target for exploration,but Wonder appears worthy of study for the following reasons:

1. 93% of the production came from one mine(Nevada Wonder),mining a single vein. Other veins exist.

2. The ore-brearer,the Wonder rhyolite,lies at the basis of the stratigraphic column;presumably any veins cropping out in the higher country described above would crop out in higher,less favorable rocks. Here erosion may not have cut down into the ore zone.

3. So far as known,no detailed geological mapping was ever done at Wonder.

WONDER-ADDENDUM

Source.- Unpublished Report on the Carson Sink Area, Nevada.
F.C.Schrader.Field work,1911- 1920.

p.27. Country rock is a Tertiary rhyolite complex;highly deformed, altered,structureless. Nearly all veins are associated with brecciated, gougy zones.

28. The most important fault systems trend NW;nearly all veins follow this system. Most faults dip NE.

30. Rocks include tuffs,breccias,but are probably mainly flows. General dip E to NE. Rhyolite dikes strike eastward. N-S faults have sliced the rocks into longitudinal zones,and tilted them to the E.

31. Stratigraphic Column:

Basalt (?)
Andesite
Extension rhyolite
Dicky Peak rhyolite
Alpine dacite
Wonder rhyolite

Wonder rhyolite: This contains the Wonder vein and the Nevada Wonder mine,main producer. Known thickness is over 2000' (deepest mine levels have not passed below it).Thickness in the Augusta range to the north,7000'. Main coungry rock for the veins.

32.Wonder rhyolite carries abundant fragments from underlying slate, through which the rhyolite was erupted. The rock is altered nearly everywhere.Alteration minerals: sericite,calcite, kaolin,chlorite, quartz, epidote.

35. Wonder rhyolite intruded by (1,oldest),Alpine dacite;(2)Extension rhyolite;(3) andesite;(4) post-mineral basalt.

36. Alpine dacite,while intruding the Wonder rhyolite,probably occurs also as a flow or flows.It contains no veins. Dicky Peak rhyolite, next younger,is extrusive. Extension rhyolite,while intrusive in the Wonder rhyolite,occurs chiefly as a flow. 37.It intrudes the Alpine dacite as well as the Wonder rhyolite;it appears to be genetically connected with the mineralization. It occurs as dikes,sheets,sills.

40. Mineral Deposits: There are over 50 quartz-silver-gold veins and lodes. Widths 1'-40'+.Gouge is usually on the walls. Nevada Wonder vein was explored to a depth of over 2000',but nearly ll the ore was mined from a depth of less than 700'.

41. Main gangue was quartz + adularia;minor fluorite. Locally,and rarely,the quartz-adularia-gangue is pseudomorphic after calcite or barite.

Oxidation extended down for 1300'.

43. Earliest mineralization consisted of barren qyartz;next,partly replacing the early quartz,came chalcedonic quartz with lowsilver. Final surge: quartz,adularia,argentite, pyragyrite,gold.

CONCLUSIONS

Mainly unchanged;I believe the Schrader report does contain a geologic map,which should be copied if we study Wonder. Field work would include study of fractures,probably minor faults,in the overlying Dicky Peak and Extension rhyolites,in the hope that they may contain ore bodies at depth,within the ore zone. The Wonder rhyolite iyself is so thick that ore bodies may lie conceleaed at depth within it.

MEMORANDUM FOR EDWARD WISSER November 24, 1965

Geology of the Wonder District
Churchill County, Nevada

ROCKS OF THE DISTRICT

Oldest rocks in the district are the Mesozoic metasediments and metavolcanics (Ms). At the southern end of the Louderback Mountains, the metamorphosed Mesozoic rocks are largely metavolcanics and in some places are very difficult to distinguish from the ~~very~~ early tertiary rhyolites. Lying unconformably on the eroded of the metavolcanics is a white to grey rhyolite usually, but not always, with abundant quartz (A1). Lying conformably upon A1 is a buff to dull olive green latite and quartz latite (A2). Lying unconformably upon all of the foregoing rocks is a purple to light greenish lavender latite and latite tuff (B).

In general these rhyolites and latites have little similarity to the Hartford Hill rocks, but I think they may be a part of a general rhyolitic event which took place early in the Tertiary in western Nevada sincse, in every district that we have worked so far, the youngest volcanic rock overlying the Mesozoic rocks is always an acidic rhyolite, rhyolite tuff, latite or latite tuff. This ~~is the~~ early Tertiary rhyolitic or acidic event is Hal Bottom's idea and I have come to believe in it more and more as we progress [redacted] on this project. This does not mean that one flow or one series of flows ever covered all or any very large portion of western Nevada, but it does appear that in the early Tertiary most of the volcanism commenced with the somtimes explosive ejection of rhyolitic tuffs and ignimbrites.

STRUCTURE OF THE DISTRICT

There are perhaps two fairly well developed structural systems at Wonder and these are the northerly to slightly northeasterly trending system and the northwesterly trending system. There is also the suggestion of an east-west system along which

many of the ore deposits and prospects lie and also the coarse grained dikes at the south end of the Louderback Mountains. The northwest trending structure at the camp of Wonder appears to be the only fault of this system that is mineralized. The north to northeast trending system appears to have had the most recent movement.

GEOLOGIC HISTORY

Early in the Tertiary period there was apparently a fairly thick accumulation of tuffs and ignimbrites in the wonder area. There does not appear to be any readily definable major structural feature in the volcanic sequence except perhaps a slight easterly warping of the volcanic sequence from the southern tip of the Louderback Mountains northward towards the old camp of Wonder. Some time following the deposition of the buff to olive latite, quartz latite (Unit A2), the coarse grained dikes had to be intruded. There is of course no way of dating the dikes and also mineral ization but I think the dikes and mineralization may be contemporaneous.

Martin feels that the purple to green latite and latite tuff, labeled B on the map) is post mineral. There is again no way to establish the date of the latite and latite tuff unit but certainly this unit is faulted and offset at one place or another by faults of all three systems. I am rather inclined to think that the latite and latite tuff member was present at the time of mineralization, but as is so often the case, the tuffs because of their incompetence tended to adsorb the fault movement along many sprays and thus the faults ~~xxx~~ lose their impressive nature on entering the tuff beds. It also seems quite possible that, as in many other camps, the mineralization was stopped in its rise against the tuff contact and was forced to flow in a horizontal direction.

ORE DEPOSITION

Generally speaking, the bulk of the ore deposits and prospects are in areas having one or both walls in the lowermost white-grey rhyolite (A1). This would seem to indicate that in general the ore deposits topped out somewhere below the top of the latite and quartz-latite unit (unit A-2) and that in the uppermost part of this latite unit and the latite tuff unit, the mineralized structures may be quite

insignificant looking. If the foregoing is true, it opens up a great deal of country in this Wonder district for prospecting. One might expect that everything that is covered by the latite tuffs is a potential ore-bearing area. This sort of thing is a made to order situation for use of geochemistry since at Creede we were able to get quite definite anomalies many hundreds of feet above the top of ore which was overlain by an altered tuff.

Martin's description of the deposits is quite sketchy and I have asked him to write a little more detail while it is still fresh in his memory. Since you have already seen the main workings at Wonder, I will not have him go into great detail on that.

For the above reasons, I do not think we should write the Wonder district off casually since the area beneath the tuffs and high in the section of buff to altered latite and quartz latite (A2) may conceal deposits of some magnitude that geochemical prospecting might very well pick up.

Gene

E. H. Lindsey

WONDER, NEVADA

J.A.Burgess, 1917, The halogen salts of silver at Wonder,Nevada. E.G. vol.12,589-593.

Rock formations: complex aggregartion of Teriiary rhyolite(oldest) dacite,andesite,basalt. Rhyolite basic type,qtz latite. Field term Wonder rhyolie.

Ore veins in the Wonder rhyolite,usually near small intrusive masses of more acid rhyolite. Veins qtz. and a white K-feldspar. Neva da Wonder the only paying mine.

Nevada Wonder Vein: Crops out. Partly on contact between Wonder Rhyolite and intrusive body of dacite;toward the N vein lies contact. lies entirely in the rhyolite. N25W,75 E.

Gangue qtz rudely banded with feldspar.Oxidized to 1300' level. Fluorite -.Ag as argentite and halogen salts; Au native and combined with argentite. Cu,Pb only as traces.

Bromo-chloride,iodo-bromo-chloride and iodide of Ag. No cerargyrite.

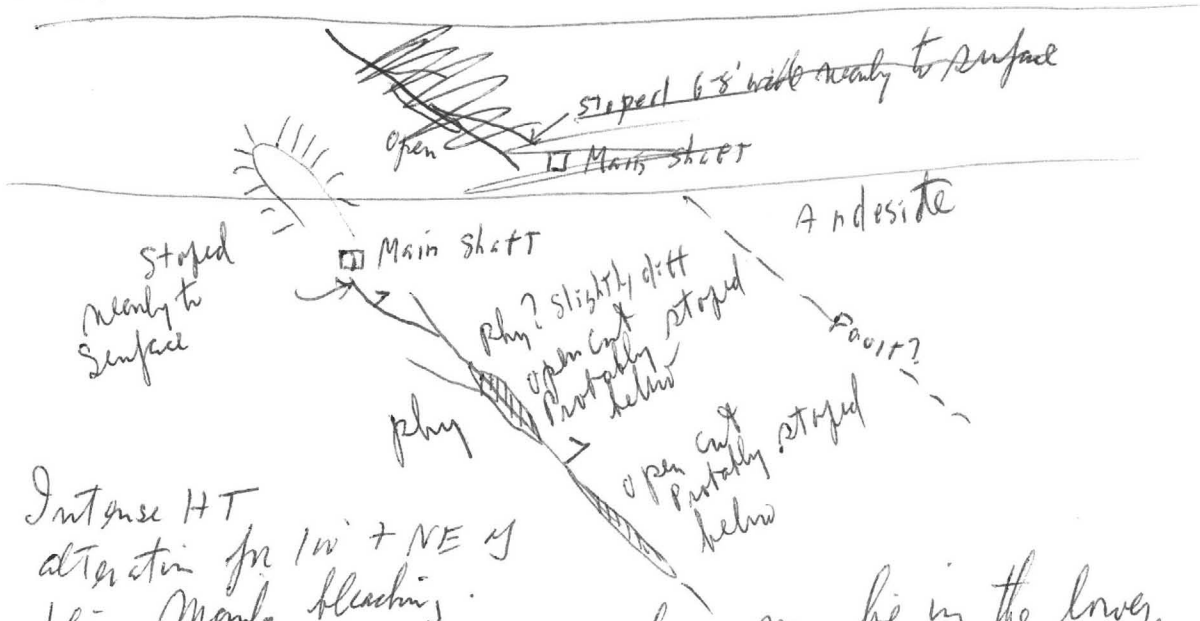
70 EAST WILLIAMS, FALLON, NEVADA • 423-2194, AREA CODE 702

FALLON

TRAVELODGE

Hecla 5/25/65

To Wonder. Productive workings on high, isolated hill – lower country for 1 mi + around it. Nevada Wonder vein N50W, 65-70 NE.



Intense HT alteration for 1 mi + NE of vein. Mainly bleaching.

The hill seems well prospected. A chance may lie in the lower country to the NE – many pits & small shafts. Wonder Rhyolite may lie at depth here, but looking for a vein in it seems pretty wildcat. But to SW, ore zone seems exposed.

Unpublished Rept. on the
Carson Sink Area, Nev.
F.C. Schrader USGS
Field Work 1911-1920

P. 24. Wonder Dist

27 Tv Rhyolite complex structureless, deformed, altered. Much flted nearly all veins assoc. with brecciation & gouge

28. Most import fault systems trends NW nearly all veins
Fig 11. Most flts dip NE

30 Rocks include tuffs, breccias, but probably mainly flows. General dip E to NE
E-W rhy dikes
N-S flts sliced rocks into longit. zones, tilted them to E.

31 Colum.
Basalt?
Andesite
Rhyolite (Extension rhyo)
" (Dickey Peak)
Dacite (Alpine dacite)
Rhy (Wonder rhyo)

Wonder rhyo - Contains Wonder vein & Moada Wonder Mine. May prove thickness 2000' + (deepest level)
TON, in Augusta Rge, 7000'
shows veins thruout.

32. Abundant slate frags - from underlying slate thru which rhyo was erupted.
Nearly everywhere altered - sericite, calcite, kaolin chlorite, qtz, epidote

35 Wonder shy intruded by
1. (Oldest) Alpine dacite
2 Extension rhyolite.
= 3. Hidden Treasure shy? - ~~Pre-mineral~~
4. Andesite
5 Basalt. Post-mineral

36
1. Alpine-dacite - intrudes Wonder rhyo but probably also as ~~flows~~ a flow or flows No veins
Dickey Peak shy, extrusive, next younger
2. Extension rhyo - chiefly as flow, but also intrusive
37 Intrudes W. Rhy & Alpine dacite Genetically connected with the Mineralizing.
Dikes, Sheets or Sills
40 Mineral Deposits 50 + qtz - Ag - Au veins & lodes.
Width - 1' - to 40' +. Gouge on walls.
Nevada Wonder vein - worked over 200' depth
Nearly all ore from depth of < 700'
41 Main Gangue qtz + adularia Fluorite -
qtz adularia gangue pseudomorphic after calcite or barite - local, I rare.
Oxidation down to 1300'
43 Earliest mineralizing = barren qtz. Next, partly replacing it, chalcedonic qtz with Ag -
This later Gouge - qtz, adularia, argentite, gold
~~Py~~ Pyrargyrite

324 Alpine District
Elev 6000' Lower E slope of Augusta
325 Range. On opposite side of range from Wonder, from which it is 20 mi. ENE
3 mi NW of Alpine P.O.

326 CR TV. In E part of area mostly rhy; Toward W, andesite
Veins in these rocks, gangue qtz & alt mineralized rock. Qtz-adularia in places.
Dips: best exposed in or near the canyons, which are mainly open drainage ways.

Williams Mine — 2 mi NW of Alpine
CR rhy
327 Mineralized shear zone N60E. dip 70° NNW into mts. Sheeted zone - qtz lenses & stringers 60' wide. Known length 7 1/4 mi. Mainly qtz & altered silicified & replaced rock. Limonite stain. Qtz in places shows replacement of an earlier spar gangue. Often much adularia ~~Cerg~~ Cerargyrite, argentite, Au - associated mainly with the qtz & the qtz-adularia part of the gangue. Branches of the mined were very rich.
Croppings not prominent.
Main workings shaft 24' deep, drifts 50' + 88' to NW.
Windlass Mine — 3/4 mi NW of Williams.
alt 6450'. On E-W ven in rhyolite on or near contact with qtz-latite. 50' incline shaft.

Vein = 2-5' crushed qtz & adularia & altered
Silicified rhyo - all ± banded. Much of the
qtz-adularia part of gangue is crustified - banded
~~So~~ Bands may number 18-20 to an inch
margins of bands renulate. Qtz-adularia contains
pseudomorphic replacements
Ave $6/Ton, 2/3 Av 1/3 Ag
328 In bottom of shaft vein sand to be 5' wide &
to contain a 28" wide ore shoot ave. $22. Surface
ores assayed $9.
At 400' SW of Windlass mine is another good
looking vein - NW 90° Pits.

3 Nevada Lincoln mine - 6 mi. NNE of alpine
In upper part of Clan Alpine Canyon 4 mi from
its mouth, near site of Clan Alpine Mill, Rugged
country. Elev. 6300'. Not visited
3 veins 200' apart. Each 4' wide, dip steeply NNE
CR rhy & probably intrusive aplite
Av - Ag ore, as seams in a shattered "qtz -
Talcose gouge gangue". Largest ore band
of qtz is 0.5-2' wide. Values mainly in hard
flush qtz. Grade $5-60/Ton.

p 65 Fairview District Elev 5700'
CR andesite

74 Column - Fairview Peak dacite Youngest
" " andesite
Pyramid Tuff
Rhyolite intrusive neck
Grade formation (Tuff aztec fault
Later andesite
Barren qtz veins (blout)
Ore Veins
Faults
Lode andesite porph. All imp veins
Dacite Tuff. Intrudes dacite tuff as large irreg stock.

Volcanics
Miocene
Thickness 3000' +
Lower limits not reached in bottom of mines
almost all volcs fragmental.

81 - 3 or more periods of mineralization
1. Barren qtz
2. Ore-bearing qtz in cracks & fissure
3. Ore in & near veins of 2nd period after they had been reopened by strike faulting

Put later

82. Ore minerals - argentite, polybasite, pyrargyrite, Stephanite, Tetrahedrite. ccpy, electrum, pbs, Au, Py. Ag ZnS.
adularia, calcite, chalcedony, chalcocite, fluorite
pbs, rhodochrosite, rhodonite, stibnite
83 Largely replacement veins
Intramineral strike faulting.

79 Faults - NNE NE - dip steep SE & NW Normal
Aztec flt - 200-1000' E of main flt. Biggest break.
Down dip movement Dip very steep E. Thrown 600' E side
heaved a little to N, like main flt.

W of flt nearly all later andesite removed; to E, 700' andesite
80 Fault is younger than the grade Tuff & older than rhyolite.

Main flt. D on E 300'; E side heaved 130' to N. Has displaced all imp. veins. Cut & dragged ore shoot on Eagle Vein. Throw & heave of Nevada Hills vein each about 300'.

Oldest flts of economic imp are strike flts trending NW. This faulting probably antedates in part the intrusion of the Lode porphyry, tho' most of it accompanied or followed the intrusion. This flts determined position of the barren qtz veins & perhaps other veins. It initiated the stage of mineralization during which nearly all ore deps formed.

81 Veins largely in Lode porphyry on or near contacts with other rocks, mainly the Dacite Tuff. Tend to conform in strike & dip the contact.

In general, esp. E of main flt, vein walls converge upwards.

{ Follow with data given above,

83 Veins larger & richer on E side of main flt than on W side (SIC). Most strongly mineralized next to the fault.

84 Veins strike N50W

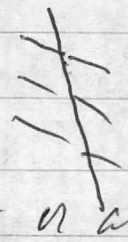
Barren veins dip NE, ore veins to SW.

Barren Veins - Blout veins: Minor ccpy, PGS, ZnS etc. Locally contain $10/Ton in Ag, Au. Says Eagle is one of the barren veins

Rhy dikes

85 Blout veins = Big vein along SW border of Lode porphyry. Largest in dist'

Few ft to 80'. Dip steeps NE, cutting monoclinal beds of dacite tuff at acute ∠s



NE

In shear zone - brecc., sheeting

Is mostly in Lode porph. but partly in DT or along contact.

Mostly dense hornlike qtz replacing wall rock - grades into it. (Mozollon)

87. Primary Ore Veins. 2nd period. Ore Veins in Lode andesite p. along narrow ∥ fissures. Converge on dip & end at Big vein. Where ore veins bottom on big vein latter is shattered & penetrated by weak stringers or bundles of ore vein qtz.

Ore veins massive, f-g ore-bearing qtz filling fractures & partly replacing brecciated Lode p wall rock; enclose frags of latter. = Tonopah veins

> Nearly all lie W of main flt. Eagle is only ore vein cropping out E of the flt.

88 3rd period veins. Primary ore veins reopened by a system of strike flts - this started 3rd period. Fissures, cavities produced filled ~~to~~ with banded qtz, cal., rhodonite, rhodochrosite

- Dips grew inward from the walls of the reopened fissures. Ore minerals enriched by sols from primary ore bodies near by.

4th Period Barren white qtz & coarse-gr cal. in openings in ore veins

89 Ore bodies where wall rock is strongly silic. also opposite (N of) thick parts of a barren vein.

Wider the vein, the better the grade of ore.

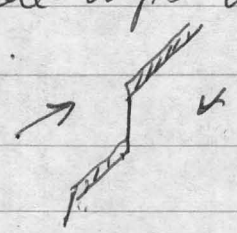
OBs formed at practically the same elevation ~~Pa~~ ground water level.

E of Main flt walls of Nevada Hills vein converge upward. W of flt, also, most veins seem to pinch upward.

Ore minerals
Argentite
Stephanite
Cerargyrite
Au

90 Gangue qtz, cal, barite(?) rh & rh. Much of 95 has replaced Cal.
Vugs - small.

91 Nevada Hills Vein. Most productive outcrop 200' NE of ‖ Big vein. Length 2200' from Main flt. 1200' NW SE of Main flt - 1000' to rhy dike - few croppings. Disp 300' H & 300' V. 1-8' wide 70 SW In segment W of main flt ore was continuous. Values favor NE (HW) side. Ore best where dips are low - poor or absent where dips is vert.



W of Main flt, down to 200' level, vein yielded fair tonnage. On E side of flt at 500' depth, considerable low grade ore. 800' level barren.

On far NW vein ramify into small stringers
Converges with Big vein at depth Ore pinches
15-30' above juncture with Big Vein

95 Eagle Vein — 1200 NE of N. Hills vein. Strike nearly W. Mostly in Lode Porph, between Tunnel flt & Main flt; important segments between Main & Aztec flts. Only vein of Nevada Hills group that crops out E of Main flt.

OC - 500' W of M.F, 400' E.
Width 2'- 40'+. Dip 40-80 SW
Gouge on FW.

Eagle contains much more Calcite, R^1, R^2, MnO_x than other veins. 2nd period
Ore Minerals in Calcite & 95

Broken Hills

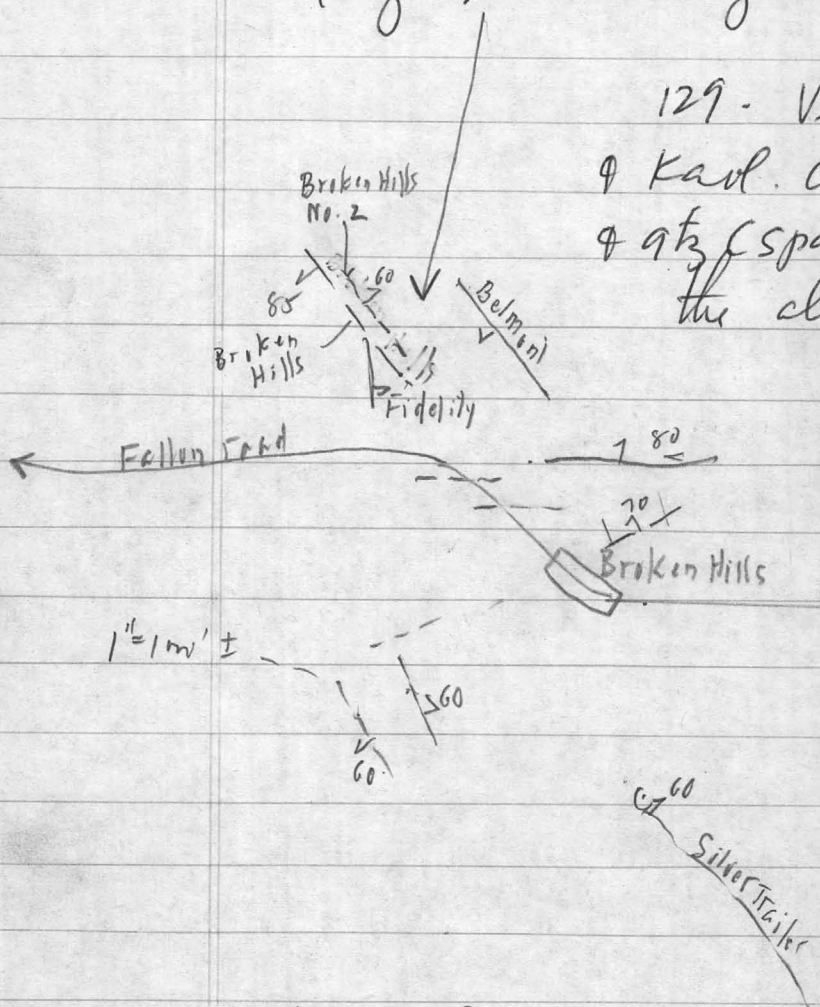
125 22 mi E of Rawhide.
127 El 5300' open low hilly country.
Basalt 40'
White volc. ash 40' Esmeralda?
andesite breccia & tuff 40' Total thickness 350'+
Highly altered. but additional thickness only
The andesite tuff breccia Several hundred ft.
has been intruded by younger andesite & basalt dikes

128 granite underlies

<u>Ore Deposits</u> – Ag – Pb

6 veins – To 2 mi long, to 9' wide
Well-defined walls – but little or no gouge. Silica not marked.

Fig 48 – Veins do not crop out – found by cross trenching. OC's were then even with surface. – stained zones. Main zone of mined 400' wide



129. Veins mainly HT altered & kaol. andesite breccia-Tuff, & qtz (sparse) ore minerals in the alt. rock. Cal – Clay
Cerargyrite
Argentite Stephanite
Pyrostite, pyrargyrite
Ag wire PbS argent.
ZnS MoS_2 Py
copy Hematite

130 Broken Hills Vein 2 mi long. 4' wide ave.
Ore by replacement of breccia

135 Bell Mt. 6 mi airline SE of Fairview
5 mi SE of Nevada Hills Mine

El. 6200'.

136 CR Silic. light colored TV. Fragmental - tuffs & flow breccias Composition probably from rhyolite to dacite or qtz latite. HT alt +.

Dominant shearing N75E, 80N. Another set N25W, 70E.

137. Bell Mt vein, or Lode Fig 45 - N70E, 50S
Assoc. with flt 10'-50'+. Known vert range 650'. Does not crop out prominently - cross trenching
Vein in part coarsely banded - Much has been crushed & recemented with Silica. No gouge on walls
Walls partly smooth.
Ore irregularly distributed but tends to occur in parallel bands, some of which have considerable continuity
Vein = greenish-gray qtz, Cal & partly replaced CR frags at one pt. lode, here 160' wide, = alternating bands of vein matter & CR, each 3-5' wide. On S or HW side - 4' qtz replacing CR. Sand to pan D5^w. Sulfide zone may be 600' down
Good ore goes with Mn stain Best values Toward FW.

138. Most ore contains much cal, some replaced by qtz
Best ore with greenish qtz - Pans AgS + Au.
Druses. Adularia
Vein explored to depth of 360'; 2000' of workings, mainly on adit (110') level, & on ~~[illegible]~~ winze on 360' level.

Ore ave $4 Av-AS E part of vein exposed only by Trenches.

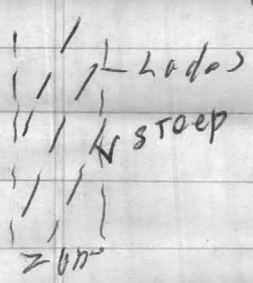
Rawhide

140
147 El 5150 Ave relief 800'
150 TV contains nearly all the ODS 1020' thick
Thin out toward borders - give way to Mesoz Seds
151 Following deposition - TV uplifted & fltd & unished in persistent N-S lines & zones.
Mineralized.
Basalt, dikes, flow caps
Pilot Cone Andesite
Black Butter basaltic Andes.
Younger rhyo & dacite
Qtz latite Tuff.
Portland rhyo. Intrudes H.H. dacite
Balloon Hill Rhyo ORE Extrusive
HT alt + a Ore-bearing. At least sev 100' thick
b Mud formation
c Flow banded overlies a, b
Hooligan Hill dacite Extrusive
161 Ore Deps. 3 N-S miner. zones
Royal-Regent Hooligan Hill Balloon Hill E zone
W zone
162 Qtz veins to 5' width, & much wider slides of Kaol-rhyo
Largely replacement veins & irreg bodies long zones of sheeting, fracture & fltg. Resemble Gold Circle

Mined to 800' depth max. Nearly all veins dip W.

163 Munich – qtz, cal, adularia, barite chalcedony gypsum, argentite ccpy PGS Au, moly, alunite pronstite, pyrargyrite, py, pyrrhotite ZnS Stibnite?

167 Most imp. deposits in E or Balloon Hill zone.



223 Eagleville 6 mi E of Rawhide

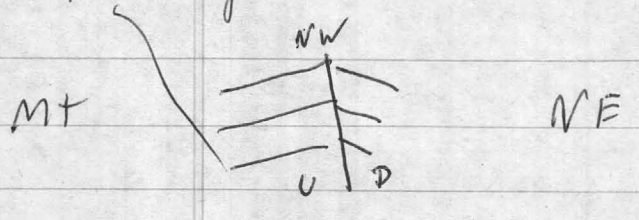
Marginally overlain & locally intruded by TV
Trias ls shale + granitoid intrusion
ODs associated with pre-Tert.

237 Rand (Bovard)
CR andesite, trachyte, rhyo. 2000' of exposed section
AU-AS veins of late T. Most imp. Gold Pen & Nevada Rand mines Propylitic alt of walls

238 Veins mostly contained in a NW fracture zone or fissure system – 5 mi long
Zone 100' – 1000' wide. Some individual veins or lodes to 60'. Veins & rocks dip NE. Tabular sheets of alunite etc.

238 Vein filling, mainly qtz & crushed or brecciated wall rock, mostly rhyo or andesite - some silicified
Some of qtz pseudo after spar. Cal, or barite
Probably assoc. with adularia
altho veins are good looking & extensive, too low grade & deps are too ~~too~~ erratically distributed for profitable mining
Being to large, comparatively barren type in Tv of W.

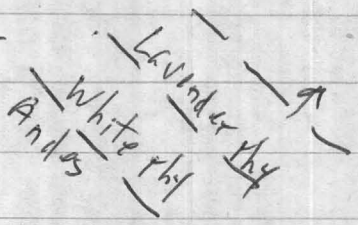
244 Gold Pan vein on a fault



282 Holy Cross (Terrell) 28 mi. S of Fallon.

283 Tv rhyo, andes. ± massive flows.

Lavender rhyo 200'+
White rhyo "
gray andesite "



285 Small Ag, Au veins, mainly in the andesite near contact with white rhyo.
Gangue mainly silicified, crushed mineralized andesite stained dark brown - black Fe, Mn ox.
Calcareous, little or no qtz.
No prominent outcrops. Larger veins in the andesite & ± ∥ to a-rhyo contact. Richer ore in stringers in rhy at 20-30° to contact.

Cerargyrite, Au, argentite, PbS (As), ccpy, py. MnOx.

297 Sand Springs
Jura-Trias ls, shale, ss, intruded by granite. In places overlain by TV rhyo, andes & basalt Fig 4 is General Geol. Map

Dan Tucker Mine in Jura-Trias Seds.

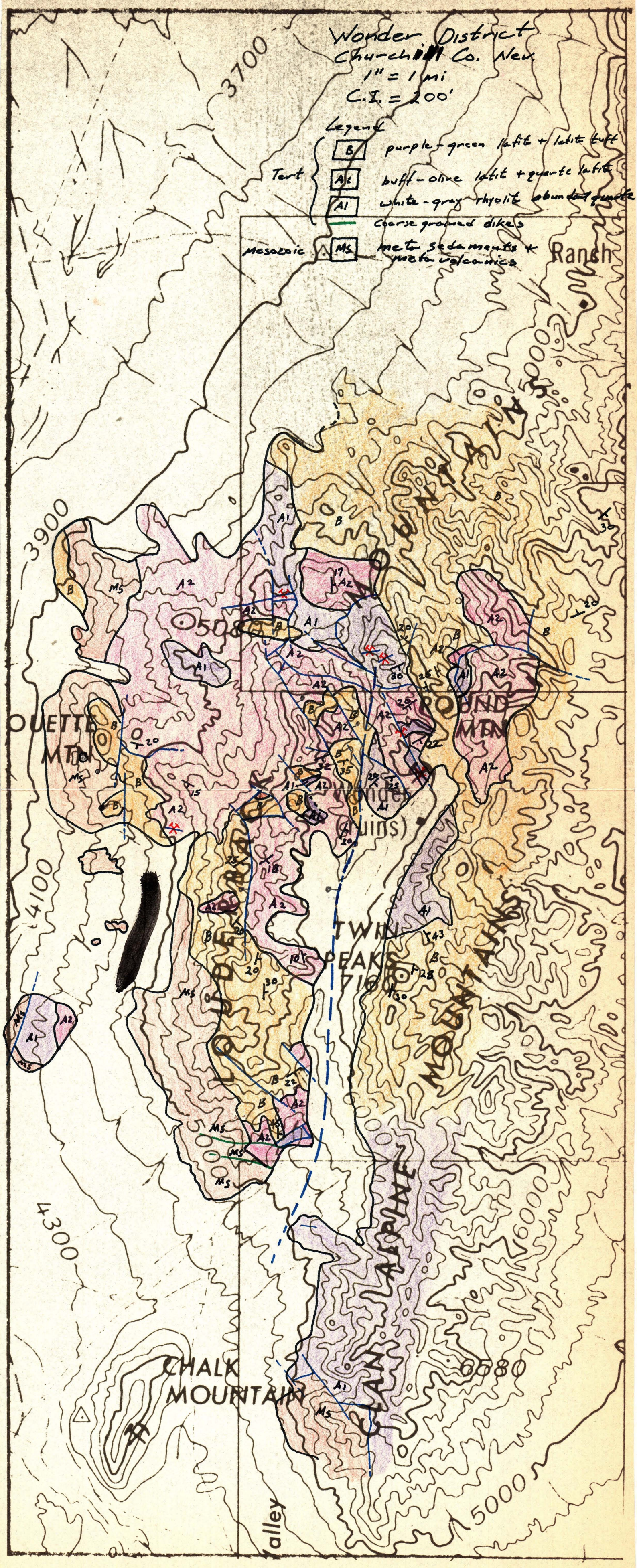
299 Kinney prospect 4 mi E of SS
El 4800' Main lode NE, 50'S in much altered basaltic andesite. HT alt rhy in FW. 1 mile 12' wide.
Laminated, bladed qtz & adularia after Spar. Vuggy MnOx.
Cerargyrite, argentite, Au Pans well

100' inclined on vein Au $5.00 ore at depth at 50' $28.

x = written up

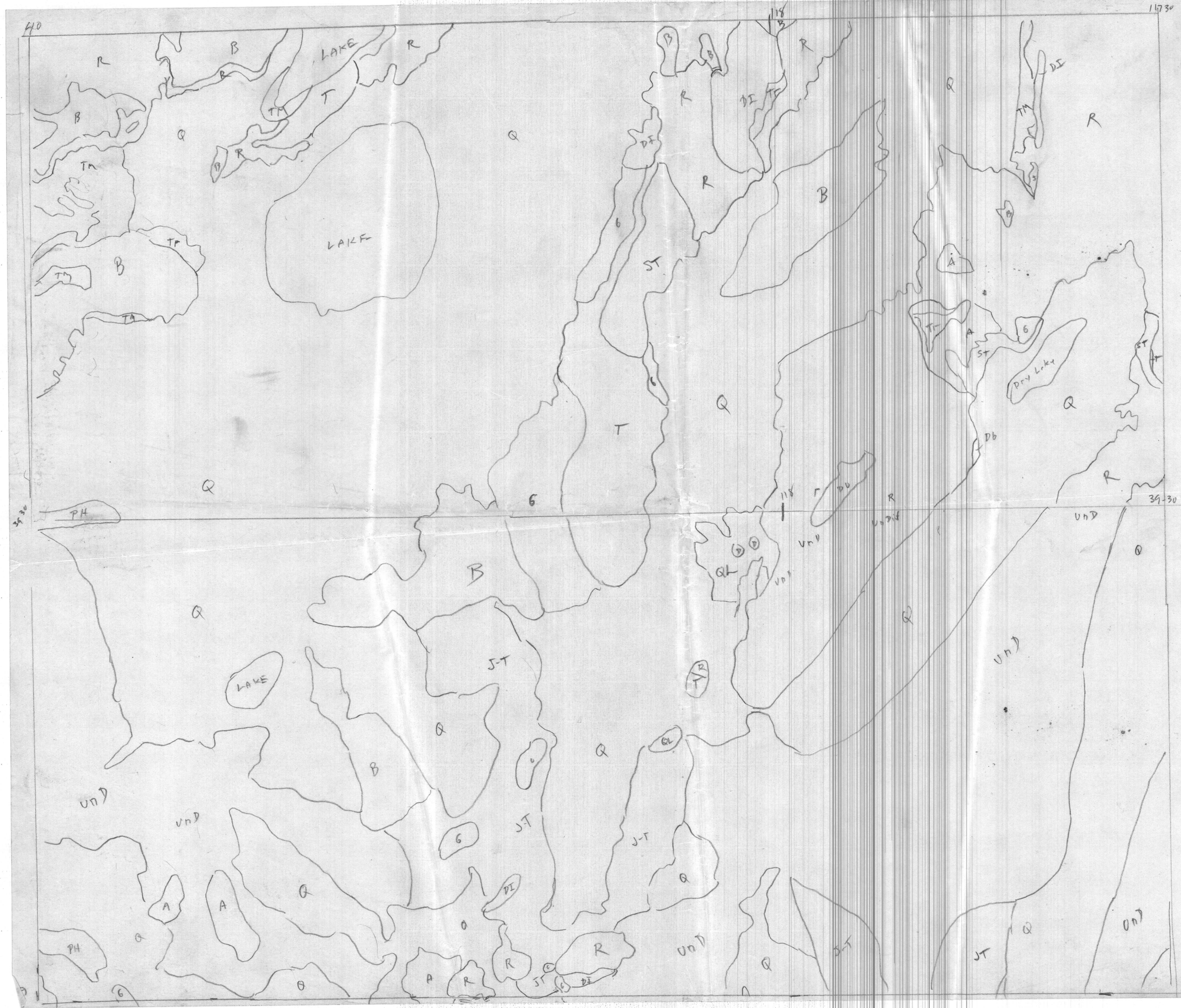
Districts Covered by Schroeder.

✓ Wonder x
✓ Fairview x
x Chalk Mt., Qtz Mt, Gold Basin, King
✓ Broken Hills x
✓ Bell Mt x
✓ Rawhide x
Eagleville
✓ Rand x
Benway
✓ Sand Springs
Mt Well (LaPlata)
Job Peak
Dandelion Mine
IXL Dist
Cox Canyon
Shady Rest
White Cloud
Jessup
Bernice
✓ Alpine x



Wonder District
Churchill Co. Nev.
1" = 1 mi
C.I. = 200'
Legend
Tert
B purple-green latite + latite tuff
A2 buff-olive latite + quartz latite
A1 white-gray rhyolite abundant quartz
coarse grained dikes
Mesozoic
MS meta sediments + meta volcanics
Ranch
3700
3900
4100
4300
5000
6000
6580
5080
QUETTE MTN
ROUND MTN
Wonder (ruins)
TWIN PEAKS 7160
LOUDERBACK MOUNTAINS
CLAN ALPINE MOUNTAINS
CHALK MOUNTAIN
Valley

WALKER LAKE
Q
G
J-T
JT
Tp + Trh
UnD
E
TM
PE
A
R
Tp
Tr
Tp + Tr
D
BQ
Esmeralda
119
118
117-30



Seds

PH Humboldt Plio

E Esmeralda, Upper Mio

TM Truckee, Mio

J Jurassic

ST Star Peak Trias

T Koipato Triass

J-T Undiff J & T including greenstones

Volcs

B Basalt Quat & Recent

Tp & Trh Pliocene (?) lavas & seds & Upper Mio Rhyolite

A Andesite

R Rhy

QL Qtz latite Early Mio? Wonder Rhyolite

D Dacite

Tr Trachyte

PE Pre-Esmeralda lavas

Un Diff. Undif Volcanics Pliocene? lavas & seds & Upper Mio cene Rhy

1" = 3.9 mi

G Granite

DI Diorite

Db diabase