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FOR E. H. WISSER

Progress Report
Epithermal Project
July 30, 1965

I. Background work, February 19 to May 17, 1965

A. Intermittent work compiling Great Basin base topographic maps at scales of 1:1,000,000 and 1:500,000

B. Compiling various overlay sheets showing Great Basin rock types structural trends and geochemical trends. These overlay sheets include:

1. Bedrock - overburden map including all deposits of whatever type having produced gold and/or silver

2. Tertiary volcanic overlay sheet showing all Tertiary volcanic rocks divided into compositional groups and age groups where such information is available.

3. Tertiary structural overlay showing all structure affecting Tertiary rocks and including, where possible, contours on the base of the Tertiary section.

4. Geochemical and trace element overlay showing trends in the occurrence of certain gangue and trace elements in epithermal deposits as well as gold-silver ratios.

5. Overlay showing contours on gold-silver production, all types of mines by 30-mile square quads.

II. Field trip by Wisser & Lindsey, May 24 through May 28, 1965 to inspect some of the districts and areas to be mapped during the coming field season

III. Field work commenced June 3, 1965.

A. Field geologist, Walter Schull, was hired and in company with Lindsey commenced work in the Como District, Lyon County, Nevada.

B. Summary of findings in Como and Ramsey-Talapoosa Districts

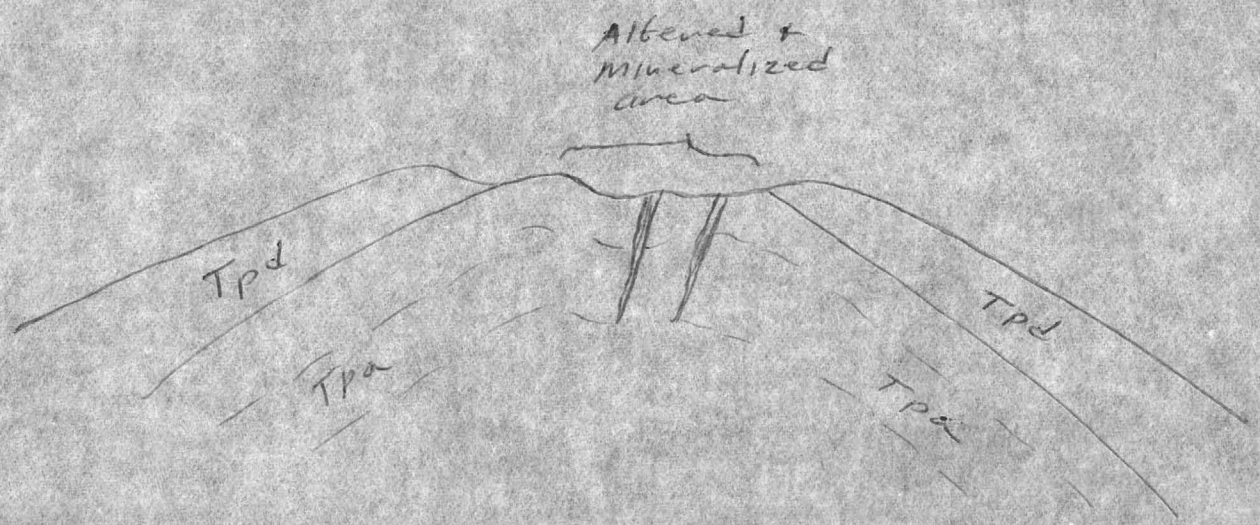
In the areas mapped thus far, the Tertiary section includes the Hartford Hill rhyolite and rhyolite tuffs (TH), the Alta trachitic andesite (Ta), the Chloropagus formation (Tc) and the Kate Peak andesites and dacites. The Alta formation appears to be a waste backet term for all rocks between Hartfold Hill and Kate Peak that do not fit into the Alta classification. The Chloropagus section as we know it consists of a vesicular basalt with

the vesicles filled with chalcedony and clay, overlain by a vitrophyre in part devitrified, overlain by a basaltic andesite. Also included in the Chloropagus are local occurrences of shale and the diatomites at Clark Station, sometimes mapped separately as the Thisbe formation.

For convenience in mapping, we have broken the Kate Peak into two and sometimes three units. The earliest unit is a porphyritic andesite flow (Tpa) overlain by a porphyritic dacite ignimbrite (Tpd). In the Ramsey area we recognized and mapped a coarse-grained variety of the porphyritic andesite (Tpca) which appears to lie between the normal andesite and the dacite. Further work in the general Ramsey-Talapoosa area leads one to suspect inter-tongueing of the normal porphyritic andesite and the coarse grained variety, and thus the coarse grained variety is perhaps not a good stratigraphic marker.

In the Como district, and southward, Hartford Hill formation is absent and the Kate Peak formation rests directly on the pre-Tertiary rocks. Northward in the Ramsey-Talapoosa area, the Hartford Hill rests on the pre-Tertiary rocks. North of the Ramsey-Talapoosa, on Highway 40, the porphyritic andesite of the Kate Peak formation is missing and the Kate Peak dacite rests directly on the Chloropagus. This thickening and pinching out of the various volcanic units is to be expected. In the Ramsey area, we found numerous dikes and small intrusives resembling Kate Peak porphyritic andesite which cut the Mesozoic rocks in the Hartford Hill formation and these may represent the source of Kate Peak porphyritic andesite in part. In the Como district, there are several breccia pipes containing altered and unaltered fragments of porphyritic andesite in an altered tuffaceous ground mass. It may be that these pipes are a source of the Kate Peak dacites in part.

Dominant structural trends are northwest and northeast. The northwest trend is probably related to the "Walker Lane" but relationships to the northeast trend are not so clear. It is possible that this northeast trend represents resumption of movement along an old trend, perhaps of Antler Age. There does not appear to be any clear cut age relationship between these two structural trends since faults of one system at one place or another, fault and offset faults of the other system. At both Como and Ramsey, the precious metal deposition appears to be at or near the center of a domal structure. In and around the mineralized centers, bedding is usually confused, but away from these centers bedding becomes much more regular. It would appear that the mineralization is topographically high but stratigraphically low, as shown in the following generalized section northeasterly through Ramsey.



All of the commercially important mineralization seen so far occurs in the andesite porphyries of the Kate Peak formation. Alteration has been noted along both the northwest and northeast structural trends in the Kate Peak dacite and porphyritic andesites, but stoping appears to be confined to the andesitic portions. Gooseberry mine (now operating) may be an exception, but the operators report that they are down 1000 feet and it is possible that they are actually in the underlying andesite porphyries. Alteration is much more prevalent in the Kate Peak andesite than in the dacite. This may be chemical in nature with the basic andesites altering more thoroughly than the acid dacites, or it may be structural with the andesite flow shattering more thoroughly than the dacite ignimbrites.

At Como, all commercially important mineralization occurs along a single fault of the northeast series. Much prospecting has been done elsewhere in altered areas but without success. At Ramsey-Talapoosa, commercially important mineralization occurs along a more easterly trending structure which is apart from the northwest and northeast systems. This mineralized structure can be traced intermittently for about 12 miles. Here also, prospecting has been done on other structures, but with the possible exception of San Juan Hill, without success. We have not seen commercially important mineralization in the Hartford Hill rhyolite, but this may be due to its limited areal outcrop.

IV. Future Work

A. The thick belt of volcanic rocks extending northerly from the Como will be mapped to the north in the Olinghouse and Nevada Dominion areas.

B. In addition geology of Wedekind and Pea Vine to the west, and Leat, Jessup and Fireball to the east of Olinghouse will be mapped.

Respectfully submitted,

E. H. Lindsey

E. H. Lindsey

NOTES ON COMO DISTRICT, LYON COUNTY

Examined 9/6/65 with Lindsey. Como lies in the Pine Nut Range.

Rock Formations.-

Kate Peak porphyritic dacite. Many very small feldspar phenos. probably an ignimbrite.

Kate Peak " andesite.

Structure.- Highly complex. The volcanics dip as steeply as 60, but some dips may be due to fault-block tilting. Howevermthe heart of the district seems to lie in an irregular domical structure. The fracture pattern consists of a strong set of NW faults, and an equally strong set of NE faults. Although Lindsey says each set faults the other at various places, at Como the NE set seems to be consistently faulted by the NW set.

Ore Deposits. All production seems to have come from a member of the NE set, mapped for a distance of 3.5 miles. The dip is 50-70 SE.

There were 2 operations on ths structure, one near "Como" on the map, the other near the NE end of the vein as mapped.

Southwest Mine.- The Boyle tunnel, shown on the map, was a haulage tunnel to bring ore to the mill; it probably connects with the main shaft. It is large and has a concrete or stone and masonry portal. The mill below the portal was a cyanide mill; tailings ~~xxxxxx~~ pile not large.

The structure exposed in the open stope near the main shaft is rather strong. Apparently a strong, wide quartz vein was mined here; impression is that the quartz pinches along the structure away from ore. Quartz seen was white, dense, bony-not live-looking. No ex-sulfide pits were seen, nor limonite, but both the mine dumps and the tailings weather irony. Bibliography mentions pyrargyrite and proustite.

Northeast Mine.- This had a large mill, but again the tailings pile is small. Lower and upper crosscut tunnel, driven from the hanging wall. Quartz the same-white, bony. Where seen the vein carried persistent bleaching of the Kate Peak andesite.

A parallel break to the SE, which in its NE portion faults Tpa against Tpd (latter on the SE), and if normal, dips SE like the mined fault. This fault carries strong bleaching like the main vein, but the actual structure is apparently not exposed. Only one cut on this.

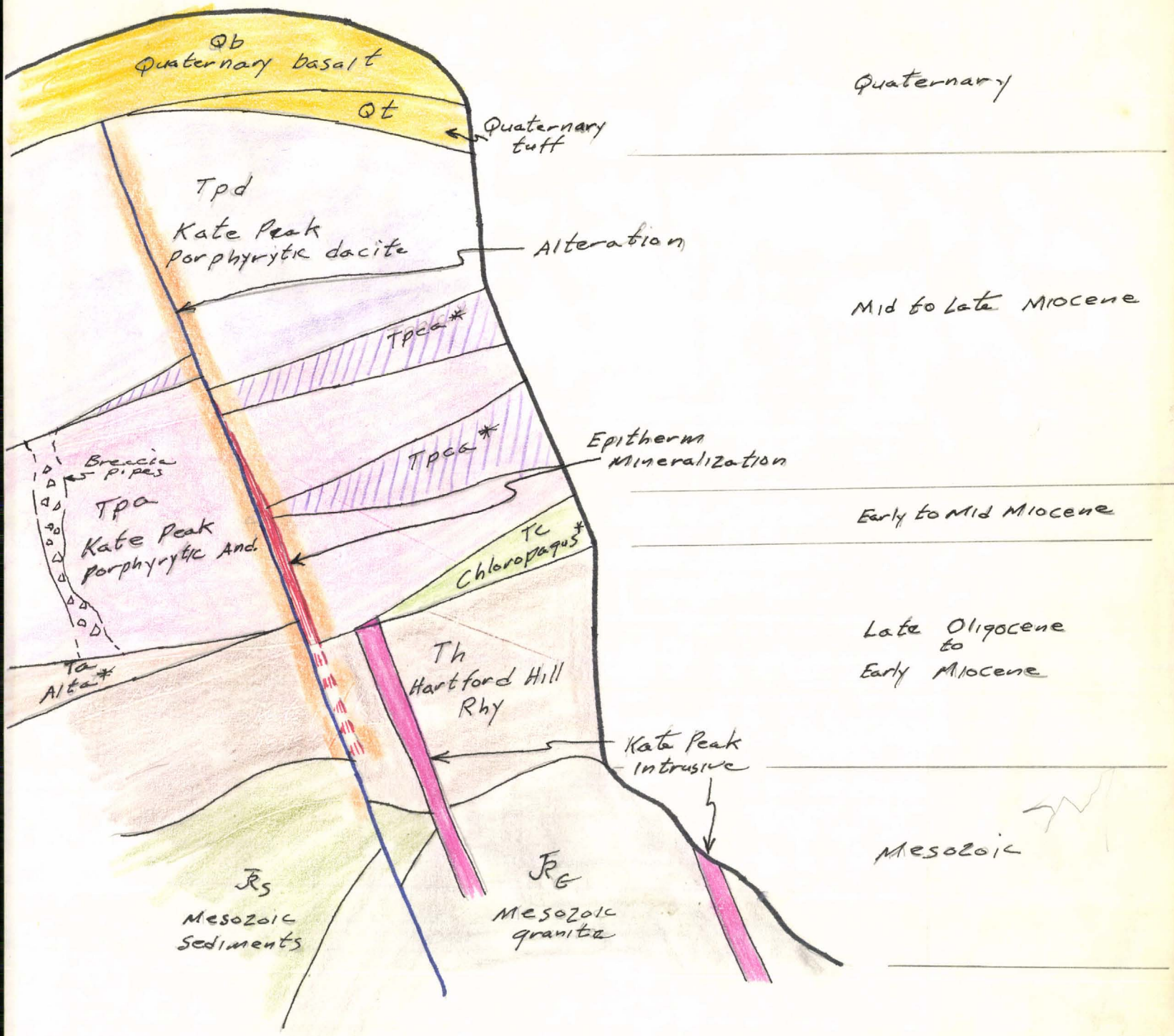
The northwest faults are unmineralized and do not show alteration along them.

Production.- 94,673 tons-$511,540. Small production, 1900, 1901, 1911, 1915. Larger, 1919, 1920, 1935. Big year, 1936, 23,958 tons, $152,561 ($8.37). 1940, 6526-$67,212 ($10.30). A low-grade camp; this seems confirmed by the appearance of the quartz.

Regional Relations.- Como lies on the E flank of a N-S anticline; the Comstock may lie on the W flank, further N. But the NE and NW faults seem to bear no relation to this anticline. The onnly metallogenic zone so far known or suspected in which Como may lie is Roberts' Comstock-Tonopah zone. Although there is some structurl evidence for this zone,

at Como it is the barren NW faults that parallel it.

Conclusions.- Although the Kate Peak dacite, unproductive but in places a capping above ore, occurs at Como, and the ore occurs in the underleying Kate Peak andesite, the dacite seems to occur as down-faulted blocks on top of the complexly faulted dome. It is only in the E part of the district that extensive areas exist where the surface is well above the ore zone. Here the zone of alteration parallel to the main vein faults Tpd against Tpa and offers some speculative promise. But in the area of the main vein erosion apparently has cut down into the ore horizon; the ore was quite low-grade and the quartz looks unpromising. Como is not recommended for detailed study, at least for the present.



* Tpac Coarse grained var. of Kate Peake porphyrytic And.

* Tc Chloropaqus includes Thisbe tuff and diatomites at Clark Station

* Ta Alta in this area is a trachitic And.

MANNING W. COX ASSOCIATES consulting geologists

57 post street san francisco, california YU 2-1436

memorandum for: Edward Wisser September 22, 1965

Detailed Descriptions
Mineralized Structures
Western Nevada Segment
Epithermal Study

COMO DISTRICT

All significant production appears to have come a single northeasterly tending fracture. While this fracture cannot be traced continuously from one deposit to the next, it is assumed that it is a more or less through going fracture. The exposed vein appears to be a 6' to 10' wide shear zone, showing some intramineral and post mineral movement. Quartz is scarce and the major mineralization appears to be iron oxides.

Alteration appears to occupy a plus or minus 20' zone on either side of the center of the vein. Southwest of the main Como shaft there is a 50' segment of white bull quartz flanking the south side of the vein structure. This is the largest amount of quartz seen in the district.

Stoping appears to have come very close to and in some instances broken through to the surface where mining has been conducted along the structure. Wall rock is the porphyritic andesite member of Kate Peak formation and it is estimted that there is probably something approaching 1000 feet of this porphyritic andesite overlying the early Tertiary Hartford Hill, if present in this area, or the Mesozoic basement complex. No mineralization or production was seen in the overlying porphyritic dacites of the Kate Peak formation, although there is a structure parallel to the Como mineralized structure which does show some flanking alteration in the porphyritic dacites.

GOOSEBERRY - RAMSEY - TALAPOOSA DISTRICTS

These mines are localized along an easterly trending zone which is apart from the general northwesterly and northeasterly trends seen throughout this western Nevada area. Individual fractures in this zone are probably not continuous from one mine to the next, but it would seem that this easterly trending zone represents some fundamental break along which movement has occurred from time to time. To the best of our knowledge there has been no great dislocation either vertical or horizontal along this zone.

Veins and vein zones are quite similar to those at Como and are from 6' to 10' wide showing intramineral and post mineral movement. Quartz is scarce and major mineralization appears to be iron oxides.

At Gooseberry, we have not actually observed the mineralized structure but descriptions from the miners lead us to believe that they have probably sunk their shaft through the porphyritic dacites and are drifting easterly and westerly in the porphyritic andesite member of Kate Peak formation. At Ramsey, the strike length explored by underground workings and surface pits and tunnels is per haps 1500 feet. Stoping appears to have come through to the surrace and this surface appears to be only slightly (100') below the porphyritic dacite - porphyritic andesite contact. Alteration appears to be a kaolinite-sericite mixture flanking the vein zones for perhaps 20 feet. This flanking alteration appears to die out very rapidly upon entering the overlying porphyritic dacites.

At Talapoosa the mineralized structure is perhaps 20 feet wide and includes a frozen silicified hanging wall showing many drusy cavities. Here again major exploration and production appears to have come from the porphyritic andesite member of the Kate Peak formation and the vein attenuates very rapidly upon entering the overlying p orphyritic dacites. At Talapoosa, clay-sericite alteration does not appear to be as well developed or pervasive and the flanking silicification and quartz are much more prevalent. The vein at Talapoosa does not show as much evidence of intramineral and post mineral movement as it does at Ramsey.

The San Juan Hill deposits are located southwesterly of the Ramsey district and are along northeasterly trending shears wh ich are thought to be a part of the general northeasterly fracturing system seen in this western Nevada belt. Judging from the size of the dumps and the size of the workings, production was probably very very minor.

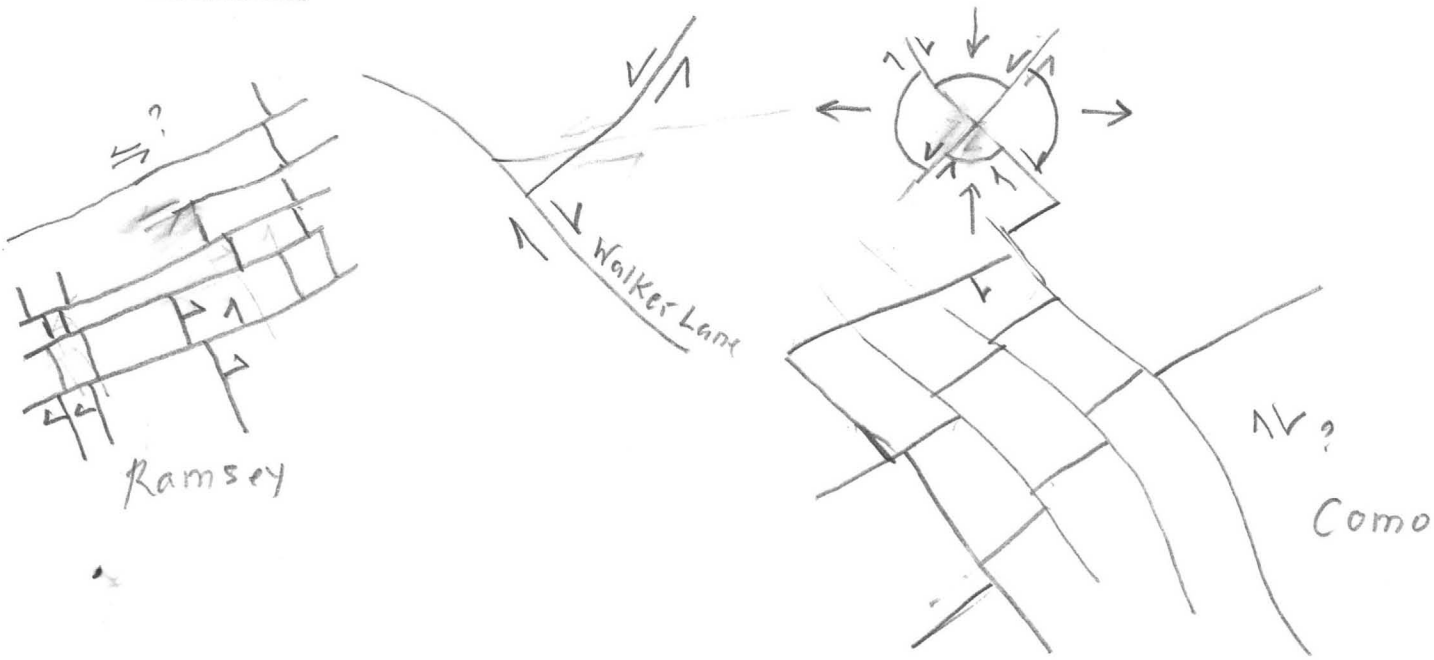
NOTE ON FRACTURE PATTERN, COMO*RAMSEY*OLINGHOUSE

What might be a conjugate fracture pattern seems to persist from Como through Ramsey and as far north as Olinghouse. This consists of NE and NW faults, At Como the barren NW faults displace the NE set (containing the main vein),but in one instance a NE fault displaces a NW fault. The maii bundle of NW faults seems to block to the NW on the main vein fault,another suggestion that they are later. However, at Ramsey the NE faults consistently displace the NW faulrs. The NE faults parallel the axis of a NE anticline at Ramsey. If they are normal faults,displacements indicate that they dip toward the axis (antithetic faults).There is some suggestion that the anticline plunges SW, in which case the NW fau;ts could be cross-joimts.

Both sets appear to show some mineralization at Ramsey.The San Juan vein a shattered zone with sparse quartz but possibly some production, lies along a steep NE break on the NW flank of the anticline. There seems to be at least alteration on a NW break NW of here. However,the chief producer at Ramsey is along a ffacture or fault striking WNW and lining up with similar braaks at Gooseberry on the W and Talapoosa on the E. Between Ramsey and Gooseberry lies near the crest of a possible WNW anticline. The geosuture has no relation to the NE Ramsey anticline.

At Olinghouse the chief structural feature is a N54E fault,nearly vertical, with about 1800' of displacement, down to S. Striae on the fault surface pitch 10 or so down to NE,but it is very unlikely that major movement was strike-slip,as thought by Slemmons:displacement too great. Although several major shafts are sunk on this fault,the bulk of the production seems to have come from veins and silica ledges in the footwall. These have varying strikes,at least some are about at 90 to the fault (NW strike) and are thought by Slemmons to be conjugate shears.

General.-



The fracture pattern, if truly a conjugate one, could be associated with shear in a horizontal plane associated with right-lateral movement on the Walker Lane, if the latter exists (see upp sketches). In this case the conjugate or subsidary (NE) shear planes should show left-lateral movement. All horizontal displacements on each set should be in this sense.

The mappong does not check this notion. At Ramsey, as stated above, displacement on the NE faults indicates normal movement, provided the faults dip toward the axis og the anticline. Horizontal displacements on the same fault are right-lateral and left-lateral. At Como, most horizontal shifts on the NW fault are in the sense opposite to that called for by the theory/

It is very unlikely, therefore, that this fracture pattern represents shear in a horizontal plane. Its present origin is not clear. At Ramsey the fractures show an areal relation to the NE anticline; this may be coincidence, because the "conjugate" system is regional in scope. Or, whatever forces created the regional pat ern may have seized on the epi-anticlinal faults at Ramsey and utilized them (assuming the anticlin is older than the "conjugate" fracture system).

It is also possible that the NW and NE sets differ widely in age. In places, resumption of movement on the older set might fault the younger. On the face of it, at Ramsey the NW set seems the older: it is universally faulted by the NE set. But at Como the reverse is true. Incidantally, there is another reason at Como for rejecting the horizontal shear theory: referring to sketch of Como, the NW faults which give an apparent horizontal left-lateral displacement of the NE faults block on the main NE vein. The only possible movement on the NW faults would be down the dip.

It might still be possible that the two fracture sets differ in age. Como is on an irregular dome, Ramsey on an anticline. Vertical movement in both places might utilize a preexisting fracture set; at Ramsey the two sets would fit the anticlinal fracture pattern ideally. At Como, upward and downward movement of fault blocks might be activated by the uplift.

<u>Age of Fracture Pattern in Relation to Mineralization.</u>- The NE main vein at Como shows that at least this fracture is premineral. The San Juan NE vein at Ramsey belongs also to this set, as does the "quartz reef" S E of it. On the other hand, a NW break NW of the San Juan seems to carry at least alteration, and the wide silicified, reefs NNW of Talapoosa strike NW. Hence both sets are probably premineral in age, at least in part.

NOTES ON THE ECONOMIC GEOLOGY OF THE RAMSEY, TALAPOOSA, AND AND WHITE HORSE MINING DISTRICTS, LYON AND WASHOE COUNTIES, NEVADA

J.M.Hill, USGS Bull.470, 1911, 99-108

99. White Horse = Olinghouse.

101 3½ miles S of Ramsey is a mass of granite capped by Tertiary volcanics.

Older Andesite.- "Tuffaceous" andesite. See I.C.Russell: Geologic history of Lake Lahontan, USGS Mon.vol.11, 1885. The phenocrysts are andesine and hornblende. Groundmass, andesine or ologlo clase; magnetite, sparse hornbelnde.

Rhyolite As dikes in the older andesite; also caps the latter as flows.

102 Later Andesite.- As dikes cutting both the older andesite and the rhyolite. Fine-grained trachytic andesite. Phenocrysts are andesine, hornbelnde, augite.

Basalt.- Covers most of the area.

103 Talapoosa-no production
Ramsey-$80,000
Olinghouse- greatest activity, 1901-19031902-1909-production $235,671, 99% Au, 1% Ag.

Occurrence of Ore Deposits.- These occupy depressions, usually caused by erosion, from which the basalt capping has been removed, exposing the older volcanics. In productive areas the rocks are much
104 altered. The later andesite intrusions are connected with the ore deposits. Where the older andesite and rhyolite are cut by dikes of younger andesite they are leached white to gray-green, earthy. Silicification is found in places along the dikes.

Ore occurs in quartz veins, but more often in ledges of altered, silicified country rock, more or less resembling those at Goldfield. Development has hardly reached water level, hence the ores are oxidized, and contain free gold and silver chloride; they show also pyrite and chalcopyrite.

White Horse (Olonghouse) District.- Main formation is the older andesite. The eastern hills show flows dippibg WSW at low angles. The rock is fine-grained porphyritic. Some tuff. Rhyolite and later andesite intrude the older andesite as sills and dikes. Rhyolite occurs east and north of Olingouse town. Later ander andesite is exposed throughout rhe district but mainly at Green Hill, just north of town. The mines are found within 1½ miles of Green Hill, which was the center of andesitic intrusion.

Green Hill Mines (On SE flank).

These produced high-grade ore, consisting of quartz and calcite with free gold in pockets along a zone of soft, altered, slickensided

andesite.

Keystone-Nevada Mine

3/4 mile northwest of Olinghouse. Country rock is the older andesite. A rhyolite dike lies ¼ mile north of the mine.

105

The ore body consists of two tabular masses of brecciated, silicified andesite, having the form of 2 veins, striking a few degrees east of north and dipping 65-80 west. Thickness varies from a few inches to several feet of smoky quartz with a few fragments of silicified andesite. The quartz contains disseminated pyrite and free gold. Fractures in the vein are filled with white quartz and calcite, both without metallic minerals.

The two veins diverge with depth, leavibg a horse of silicified, pyritized andesite between. Grade of ore $15-40 per ton.

Tiger Group

This lies 1¼ mile northof Olonghouse. Country rock is the older andesite, cut by a northeast dike of later andesite. Vein strikes N30 E dip vertical, and occupies a fault zone along the contact between the older andesite and the later andesite dike. Ore consists of quartz and pyrite with minor chalcopyrite. The ore shoots in the vein pitch NE.

Buster Mines

These lie 1 3/4 mile NE of Olonghouse. Country rock is the older andesite intruded by rhyolite and later andesite. The Maciza zone consists of a vein of drusy quartz 5-20' wide, striking north and dipping steeply west. There are two parts to the vein: (1) massive yellowish quartz carrying assays up to $80 per ton. This lies on the footwall and is 4-8" wide. (2) The rest of the vein consists of white drusy quartz
106 running $5-18 per ton.

The Dispensia zone lies in soft, altered andesite. A rick kidney showee assays up to $4000 ;er ton in gold and silver. A sample examined consisted of a browning yellow heavy mass, woth fragments of sericitized andesite, cerusite (?), argentite, and possibly a gold-silver telluride. The sample pans gold.

Ramsey District.- In a basin from which the basalt has been stripped, exposing andesites and rhyolites. In the northern part of the basin the rock consists of coarsely porphyritic andesite with a few small rhyolite dikes. The hills at the south end of the district consist of rhyolite, mainly as flows. 1 mile north of town is an east-west fractute zone running across the basin. The zone is intensely silicified and iron stained. Dip is about 50 N.

Ramsey-Constock Mine

The ore body lies in the above "dike", which is cut by NE and NW joints. Pyrite is disseminated throughout the quartz mass but is especially abundant on the hangingwall side of the NE joints. The general
107 tenor of the dike is $6-10 but lenses on the NE joints give values of $50 or $100. At the 200 and 400 levels the dike is 40 ft. wide. The hanging wall is a fault aone with 5-15' of clay gouge and crushed andesite. At depth of 160' the ore was largely pyrite with sparse free gold.

108 Talapoosa District.- The only important prospect is the Justice and,showing a prominent vein outcrop. Rhyolite cut by an andesite dike about 150 ft.wide runs west under the basalt. The dike dips 40 SW. Above the dike,to the south is a ledge, 8-28' wide of brown-stained drudy quartz. The vein cosnsists of bluish-gray quartz cut by stringers of white quartz and calcite.Only the dark quartz contains metallic minerals:pyrite,chalcopyrite,probably with argentite and silver chloride.

NOTES ON TALAPOOSA DISTRICT, LYON CO.

Examined 9/7/65 with Lindsey.

Reference: Notes on the economic geology of the Ramsey, Talapoosa and White Horse mining districts, Lyon and Washoe Cos., Nevada. J.M.Hill, USGS Bull.470, 1911, 97-108.

P.108. The only prominent prospect is the Justice Hand, showing a prominent vein outcrop. Rhyolite cut by an adnesite dike about 150' wide runs west under the basalt. The dike dips 40 SW. Above the dike, to the south, is a ldge, 8-28' wide, of brown-stained drusy quartz. The vein consists of bluish-gray quartz cut by stringers of white quartz and calcite. Only the dark quartz contains metallic minerals: pyrite, chalcopyrite, probably with argentite and silver chloride.

Our field mapping does not check this. It shows a window of Kate Peak andesite, surrounded on the N, W and S by basalt, on the E by Kate Peak dacite. The dacite is exposed S and SW of the basalt and is exposed at elevations 300 or 500 ft. lower than the Tpa at the mines. Whether this is due to down-faulting or to the presence of an uplift with apex at the mine is not known.

The main vein strikes just N of W and was traced across the Tpa window and apparently into Tpd on the E. Total length traced 1.3 mi. It lies on the S slope of an eastward trending nose extending out from the main mountain mass. The slope is quite steep, especially on the W, the ground flattening to the south, below.

We examined the westernmost, and highest workings. These consist of an opencut along the vein on the east, with underground stopes below the cut, and beyond its wetsern edge. The vein is impressive, 12' between well-defined walls. Dip 70 S. The footwall stands up as a big silified reef, at the cut and for several hundred yards to the E. The footwall at the cut shows a typical epithermal stockwork, but the quartz, as at Como, is white, bony. Boulders in the cut show a quartz-cemented rock breccia:

Druses

In the flatter country, below and to the east, is a small mill building.

While we were there a Boyle Bros. truck-mounted rotary drill started a vertical hole, which would intercept the steeply-dipping vein at a great depth.

Production.-	1914:	783 tons	$9,586 ($12.20)	
	1940:	197	2,815 ($14.30)	(Au, As, Cu)
		980	12,401 ($12.65)	

This small production probably came from the cut and stopes we saw.

Regional Relations.- The most obvious is the presence of Talapoosa on the roughly E-W Ramsey-Gooseberry lineament, known length, Talapoosa to Gooseberry, 12 miles. Sand Springs, 45 miles E of Talapoosa, lines up roughyl with this lineament. Most of the country between is low, covered by alluvium. But west of Talapoosa, toward Ramsey, there are 2.5 mi. underlain by Tpd, in which the lineament has not been traced. If it could be, and if a geochmeical anomoly could be found, it might be worth drilling.

At Talapoosa itself, erosion had quite defintely cut into the ore zone before depoaition of the Quaternary basalt,and this is a point against it. Nevertheless, the depositional contact with Tpd E of the Tpa window shows that the ore occurred very near the top of Tpa. Mine workings cannot be deep,so that a great thickness of Tpa remains uneexplored. This seems to have been the thinking back of the drill hole going at the time of our visit.

It is my impression that geosutures or limeaments do not produce mining districts except where local,favorable structures lie along them.(Coeur d'Alene, Mother Lode). The possible domical structure at Talapoosa may be such a structure.

Based on present knowledge, I do not think Talapoosa may be dismissed.

NOTES ON RAMSEY DISTRICT, LYON CO.

Examined 9/7/65 with Lindsey.

Reference: Hill, 1911,p.106-107.

P.106. In a basin from which the basalt has been removed,exposing andesites and rhyolites. In the northern part of the basin the rock consists of coarsely porphyritic andesite with a few small rhyolite dikes. The hills at the south end of the district consist of rhyolite, mainly as flows. 1 mile N of town is an E-W fracture zone running across the basin. The zone is intensely silicified and iron-stained. Dip is about 50 N (we get 75).

Ramsey-Comstock Mine

The ore body lies in the above "dike"(local name),which is cut by NE and NW joints. Pyrite is disseminated throughout the quartz mass but is espcially abundant on the hanging wall side of the NE joints. The
107 general tenor of the dike is $6-10 but lenses on the NE joints give values of $50 or $100. At the 200 and 400' levels the dike is 40' wide. The hanging wall is a fault zone with 5'-15' of clay gouge and crushed andesite. At a depth of160' the ore was largely ptrite with sparse free gold.

We examined an open, stulled stope coming out at the surface. Probabl the Ramsey-Comstock mine. Access to the stope was thru a sjh ft,as I recall. The open stope is 6-8' wide,with very regular hanging wall and footwall. The wall rock shows bleaching and pyritization. I do not remember any prominent silicification.

The ground rises to the north,and the Tpd/Tpa contact may be seen;the contact lies about 150' higher than the vein outcrop.

The outcrop rises in elevation to the E. Several cuts on the vein here are said to show no quartz but onoy strong alteration.

Production1915; 1933-34(very small);1936,39,40. Total 11,061 tons, $373,325 ($33.70). Au, Ag.

Regional Relations.- On the Talapoosa-Ramsey-Gooseberry WNW lineament. The NE anticline,and NE and NW fracture sets described elsewhere seem to bear no relation to the lineament;but an E-W anticline,which seems to merge with the NE anticline on the E,has its axis parallel and shortly N of the lineament.

Add: The San Juan vein,belonging to the NE set and on the NW flank of the NE anticline,was examined. It is an unimpressive steep-dipping shattered zone,but well-defined. Minor quartz seen;might have had some production.

Conclusions.-The considerable Ramsey production shows that erosion has cut into the ore zone;but ore mined was close to the top of Tpa and there may be a good thickness of the latter unexplored. Within Tpa or its coarsely porphtritic facies,there is 0.7 mi.to the E of the known vein outcrop,and 2 mi.to the W,where the vein has not been traced.

It might pay to examine these stretches to see whether the lineament simply dies out here. A persistent buried flaw might be reactivated in its cover only at intervals, in which case the exploration proposed under "Talapoosa" between that camp and Ramsey, and under Tpd, might prove less promising, especially if no reflection of the limeament can be found in the Tpd.

The Gooseberry mine, at the W end of the known lineament, was examined only from a distance because of mining activity then going on and a wish not to show too much interest. Here the country rock is Tpd and the lineament is marked only by a zone of alteration. Operators are said to be drifting E and W on the 1000' level of a shaft. This level may well be in T pa, but it is of interest that alteration may climb probably at least several hundred feet high in Tpd. If the 3 miles of Tpd between Ramsey and Gooseberry is examined in search of the lineament and the latter is found, presence of alteration combined with a geochemical anomoloy might make an exploration target.