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## QUICKSILVER MINE, NAPA COUNTY, CALIF.

Location.- The property lies within a northwest belt of important quicksilver mines, the most important of which lies only a little over a mile away.

Holdings.- Property map not available; geologic map shows about 3000' along (NW) strike of formations, with a width perpendicular to the strike of about 1500'; I take this to be approximately the size of the property.

Accessibility.- About 8 miles from a State Highway, over fairly good dirt roads.

Topography Etc.- Mean elevation at the mine is 1800'; the property lies on the SE nose of a ridge trending N50W, the dominant trend of this portion of the Coast Range ridges. There is a good growth of timber on the property-pine, fir, oak, madrone. A sawmill 20 miles away delivers lumber at \$25.00 per M. The main creek carries water most of the year. There are also springs in the area. Only camp facilities is a 14 x 24' cabin.

### General Geology.

Rock Formations.- The principal rock formation is a thick series of arkosic sandstone beds, assigned to the Knoxville (Upper Jurassic-Lower Cretaceous). Toward the top of the exposed section of this sandstone are sill-like, thick masses of serpentine, apparently intrusive into the sandstone, as thick sheets roughly, but not in all places exactly, parallel to the sandstone bedding. Near these serpentine sheets (?) the sandstone has been altered by contact metamorphism.

The above formations cover most of the area. In the southwest portion are nearly horizontal flows of basalt.

Structure.- The sandstone beds and serpentine sills (?) lie along the SW flank of a major NW anticline, on whose NE flank lies a major producer of quicksilver. On the NE flank the dips are only 10-15°NE, while on the SW flank they are steeper, 20-30°SW.

The basalt flows in the SW portion of the area appear to be separated from the sandstone and serpentine described, by a major fault, striking NW and dipping about 45°SW. (My interpretation of the maps and sections; source of information does not say so). This fault may be very nearly a bedding fault; in its footwall lie the serpentine and sandstone, in its hangingwall the basalt flows, of no commercial interest.

The serpentine and sandstone block, in the footwall of what may be called the Contact fault (?) is broken by several other faults, several roughly parallel to the strike of the sandstone beds, others roughly normal to the strike. That two of these faults, with marked displacement, butt on the supposed Contact fault without displacing it seems evidence enough that the Contact fault is really a fault.

Within the serpentine sheet-like complex is a thin but persistent talley gouge, dipping about 33°SW. The gouge lies toward the bottom of the serpentine, and below it, between the gouge and the top of the sandstone, the serpentine is well shattered.

(Cinnabar).

Quicksilver Ore Bodies.-/ Flat-lying ore bodies occur at 3 horizons in the block below the Contact fault (?):

1. In the metamorphosed sandstone, immediately below the lowest serpentine sill.
2. Within the serpentine, immediately below the talcy gouge described.
3. To a small extent, along the Contact fault (?).

The bulk of the production, estimated at from 1200-1500 flasks, came from (2). This ore retorted from 15-160 lbs./ton.

Development.- There are five main tunnels, 3 completely waded, two partly open. The difference in elevation between the highest and lowest tunnel is only 160', so that deep exploration is wholly lacking. The objective of all five tunnels was the talcy gouge in the serpentine. Total footage 1800', of which 1050' was crosscutting.

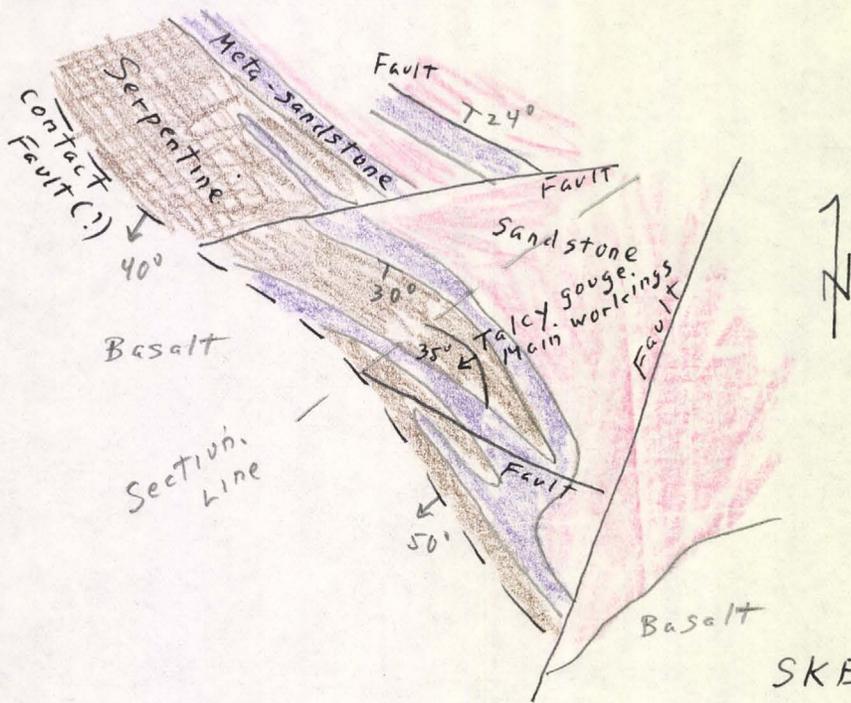
Composite maps indicate the desultory nature of the exploration. The workings wander around, on or off the gouge; several crosscuts cut the serpentine-sandstone contact (1), but the contact was apparently never drifted on. At two of the 3 nearby major producers, this horizon produced the ore.

Conclusion.- This prospect seems a good geologic bet, if the facts are as stated. The following requisites for a successful quicksilver mine appear present:

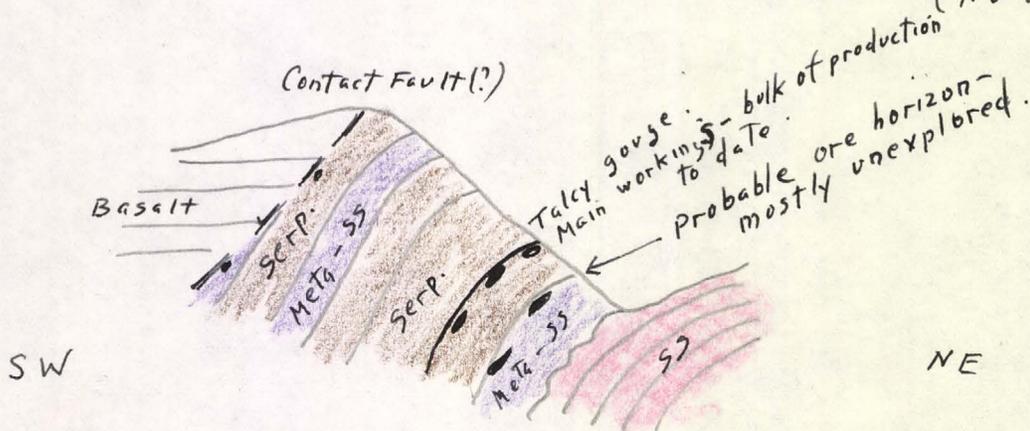
1. Good location, close to producing mines.
2. Actual production.
3. Favorable structure for future production: (a) major faults and a sharp anticline, fractured, as possible channels for ore solutions. (b). A reservoir or host rock ( the sandstone, and the well-fractured lower part of the serpentine above the sandstone). (c) impervious "traps" to catch the ore, as the talcy gouge, and, where lower part of serpentine is less fractured, the contact between the serpentine and the sandstone.
4. An explanation why it has not already made a mine: lack of extensive and intelligent exploration. The property has only had a retort on it, I believe, and attention has always been centered on finding pockets of retort ore rather than large bodies of furnace ore.

Source of Information.

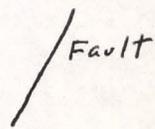
The writer of this memo has not as yet seen this property. The above data are based on a report, the major features of which sound convincing. The writer of this memo is acquainted to some extent with the general area and with one of the major producing mines in it; the description given above fits the known regional geology. It is my opinion that this property merits investigation.



SKETCH PLAN  
(No scale)



SKETCH SECTION  
(No scale)



● Hg ore body (diagrammatic)

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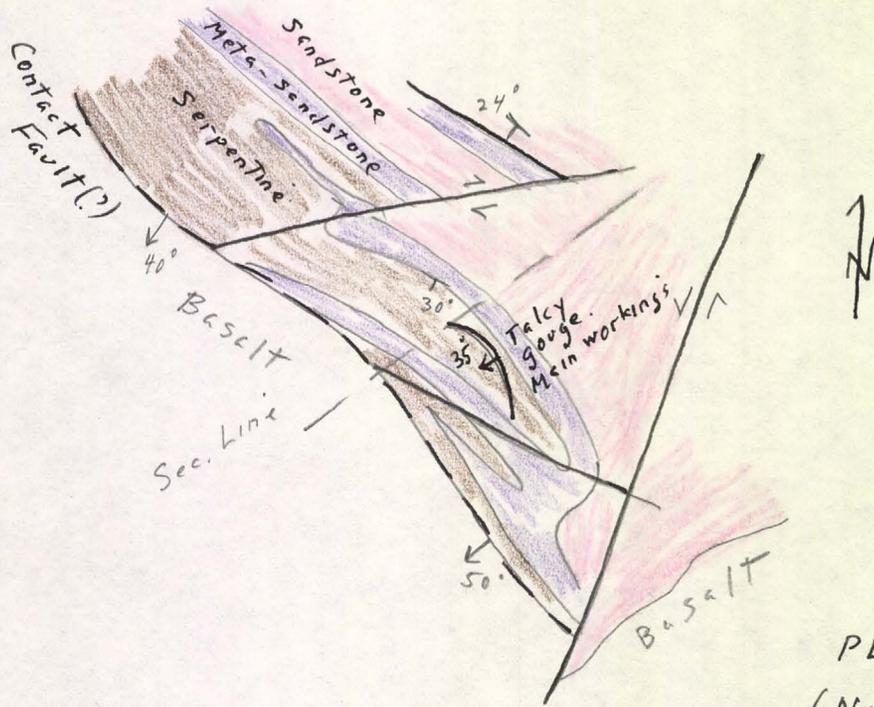
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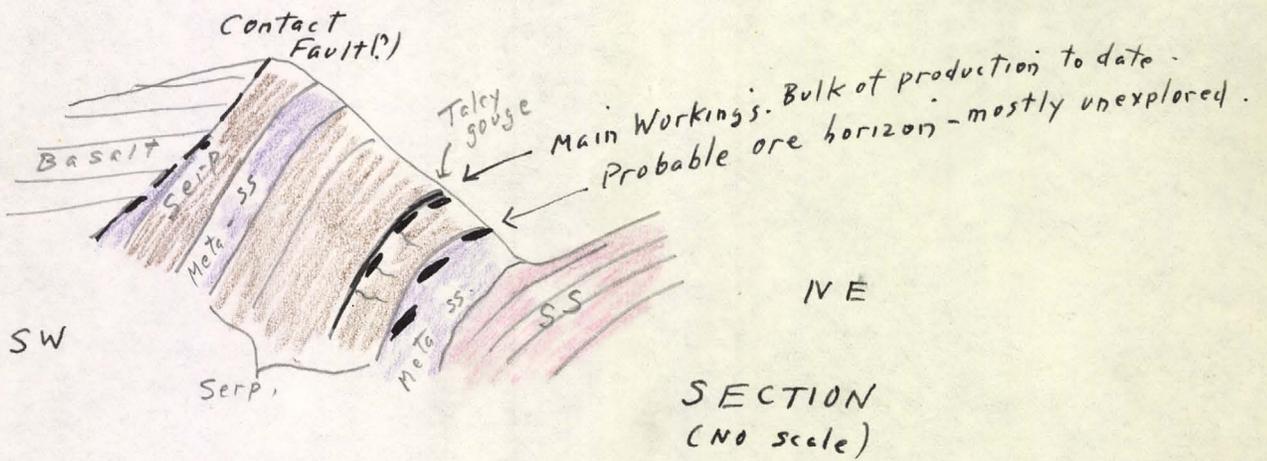
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(No scale - sketched)



 Fault  
 Hg ore body (diagrammatic).