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August 7th, 1941.

Mr. B.E.Richmond,
64 West Santa Clara Street,
San Jose, Calif.

REPORT ON QUICKSILVER PROSPECTS, RICHMOND RANCH.

Introduction.- The following report is based on a visit to the property July 29th, 1941, and on the following sources:

1. Geologic Map of California, Calif. State Division of Mines,1938.

2. Unpublished geologic maps, sources of the above map.

3. Quicksilver Resources of California. State Mining Bureau, Bull. 78, May, 1918.

4. Information furnished by Dr.Olaf P. Jenkins, Chief Geologist, Calif. State Division of Mines, and Dr.N.L.Taliaferro, Chairman, Dep't. of Geological Sciences, University of California.

Location; General Geology.- The property lies some 9 miles airline SE of San Jose. Its position with respect to the small towns of Evergreen and Edenvale is shown on the accompanying map. Showings within the Richmond Ranch lie on the ridge between Dry Creek and Silver Creek.

A large mass of serpentine, trending NW, occupies the entire ridge between Dry and Silver Creeks,in the area examined. The full width is not exposed,but the mass apparently extends past the Coyote River. The Geologic Map of California shows it extending a number of miles SE of the area shown on the accompanying map. SW of Silver Creek, a large area of chert lies surrounded by serpentine, while SE of the chert area is one of rhyolite.

The serpentine and chert are Franciscan (upper Jurassic) in age; these formations, with Franciscan sandstone, are those commonly associated with quicksilver in the quicksilver belts of the California Coast Range.

Dry Creek marks roughly the boundary between the serpentine and a series of younger rocks, Knoxville shales on the east and Quaternary gravel and more recent wash on the west. This boundary is thought to be a fault contact, and the fault to be a member of the Hayward fault zone, a major structural feature of the Coast Range, and a locus of active fault movements (earthquakes) extending into our own times.

Mineralization.- The strongest mineralization in the region is exhibited by a mass of slide rock in and near Silver Creek (marked "slide rock" on the map). The slide consists of boulders of vein rock (mineralized serpentine) and unmineralized serpentine "niggerheads", with clay and soil. The vein rock carries cinnabar. This locality is described as follows in Quicksilver Resources of California, 1918. p.168:

> Silver Creek Mine (North Almaden)...A large body of serpentine containing cinnabar was found in Silver Creek gulch...This detached body was evidently due to a great landslide which is plainly visible about the works. It was approximately 1000' in length, 300' wide, 60' in thickness, and was exhausted in a few years, producing about $60,000 worth of quicksilver. Occasional prospecting has been carried on since, but no important ledge has been found in place.

The slide undoubtedly came from the SW slope of the divide between Dry and Silver Creeks, for a great half-bowl has been carved out of the hillside, with a typical landslide hummock in the bottom of the bowl, toward Silver Creek. The slide rock represents what was formerly a lens of rather low-grade quicksilver ore, enclosed entirely in serpentine. The entire lens slid off the mountain to and be-

yond Silver Creek. Such landslides are common in connection with Coast Range serpentine masses in area of high relief. Examination of the present edges of the "bowl" revealed rather weak mineralization. A flat-lying shear or fault structure, of moderate strength, appears in the serpentine near the top of the "bowl";the ore lens may have been localized beneath this structure. In the Coast Range, quicksilver ore bodies associated with serpentine commonly occur near contacts of serpentine with other rock formations (usually sandstone, sometimes chert) or near faults. Neither a contact nor a fault exists near the "bowl". Isolated ore lenses are found entirely within serpentine,but such lenses are usually small, and no guides exist to hunt for other, similar lenses. They just occur sporadically within the serpentine. I am against any attempt to pick up a lens similar to the one that now forms the rock slide,because (1) mineralization around the edges of the "bowl" is so weak, and (2) no guides for exploration exist.

About a mile SE of the "bowl" the ridge between Dry and Silver Creeks is capped by a large exposure of silica-carbonate rock. This "vein rock" looks promising in places, and contains sparse cinnabar, although a sample taken from the dump of an old cut or caved tunnel failed to show any quicksilver. The mineralization appears to lie along sheeting or slight fault planes that strike NW and dip gently SW. The vein rock has been fractured,the fractures reopened or new fractures formed, and sealed with later veinlets of carbonate and silica. Further, mineralization looks stronger with depth,i.e. down the NE slope of the ridge,and toward the Hayward fault, i.e. toward the NE.

Conclusions.- This showing a mile SE of the "bowl" looks like a rather attractive gamble. There are thousands of acres of silica-carbonate rock connected with Franciscan serpentine in the Coast Ranges;only an insignificant proportion carries quicksilver. The following general considerations make the showing in question of interest:

1. The property lies on the eastern edge of the New Almaden district, the greatest quicksilver district of North America. New ore bodies are commonly found, not in isolated localities, but around the fringes of productive areas.

2. The major producers lie along major structural features of the Coast Range, such as sharp folds and large faults like the Hayward fault. In the Richmond Ranch area, there is no question but that the mineralization is connected with the Hayward fault in a general way. Witness the old tunnel examined, on the NE slope of the ridge between Dry and Silver Creeks, where mineralization is strongest near the portal, i.e. toward the fault, and dies out to the southwest, toward the face of the tunnel and away from the fault. The promising outcrop a mile SE of the "Bowl" lies very close to the fault.

3. Quicksilver deposition in the Coast Range came very late; the entry of the quicksilver solutions into the rocks where they deposited their load was facilitated by fault movements occuring at the time. It is extremely likely that fault movements were taking place along the Hayward fault in or close to the period of quicksilver mineralization.

Recommendations.- The SE area seems worth some exploration. One of the old workings there seems to be a caved tunnel; it should be reopened. The outcrop should be carefully examined for cinnabar, and the softer parts, especially down the NE slope of the ridge to the flatter ground below, panned. This work should be done by an experienced quicksilver prospector. If all results are negative, a decision must be reached on whether or not to go further; naturally in this case the odds against finding ore are lengthened. If however, traces of quicksilver are found, and especially if such traces are not scattered sporadically over the outcrop but confined more or less to one or more definite areas, then I consider the chances good for ore, and recommend further work. The nature of this work will depend on results of the prospecting, but if as I

think probable, any favorable signs found point down the NE slope toward the fault, then the next exploration step should be by bulldozer.

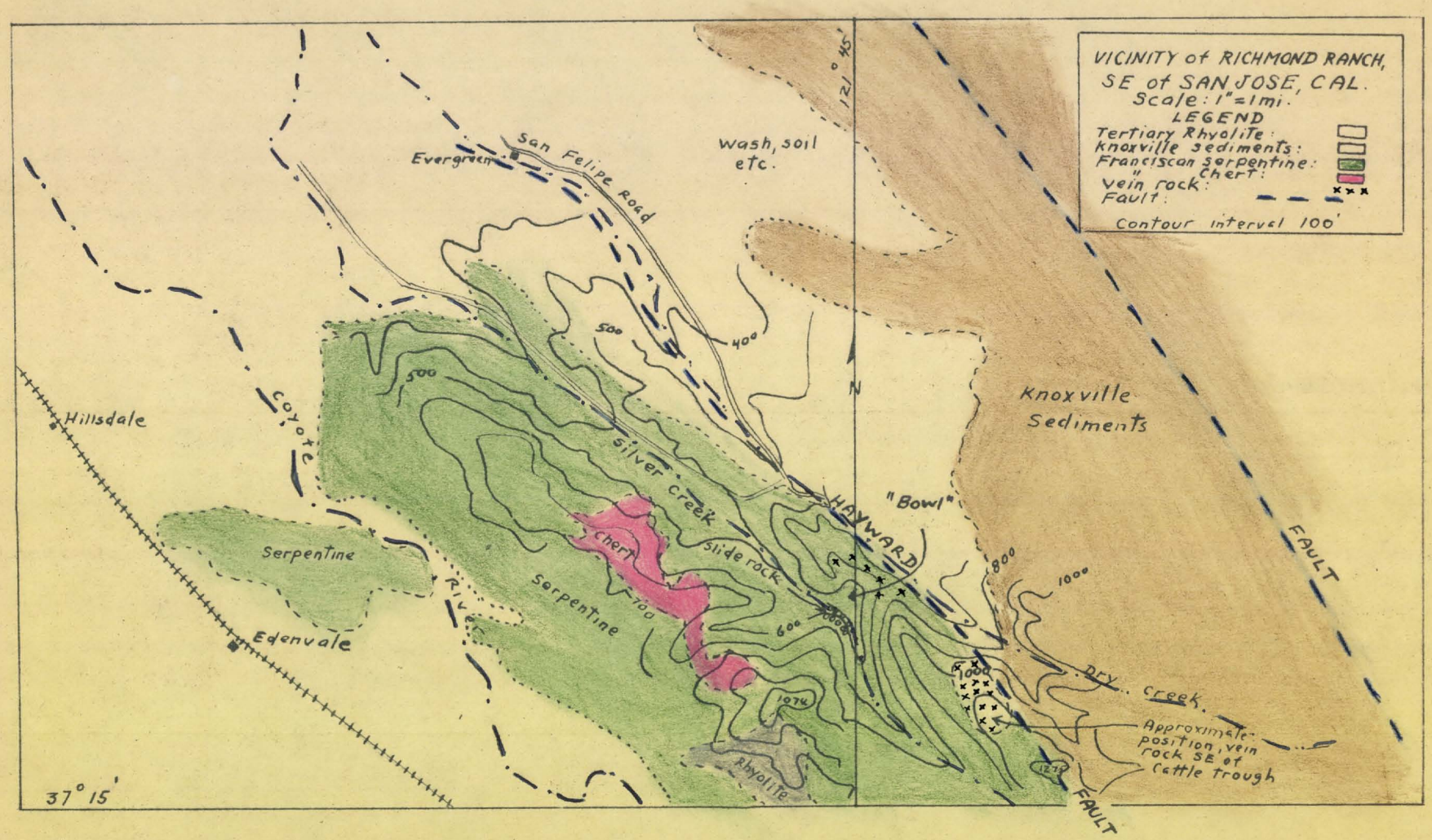
Given one or more favorable areas in the outcrop, then one or more bulldozer trenches should be dug, starting as far down in the flatter country as possible, and heading SW toward the hard croppings where they appear favorable. Reaching the hard croppings will of course stop this work. But it must be remembered that quicksilver ore is rarely found in the hard vein rock that caps it, except in small amounts. Ore is usually in softer stuff beneath. The proposed trenches may expose the Hayward fault, and perhaps a strip of country on the SW side of the fault. This is promising country. If one of these trenches exposes promising ground at the NE edge of the hard vein rock, then side-swiping along this edge to right and left may be done, or a nearby parallel (SW) trench may be dug. If this second prospecting step (i.e. trenching) shows nothing of interest, then once more a decision to quit or go ahead may be reached. The odds against ore are now still longer.

If it is planned to go ahead, the next step would be underground work: possibly one or more tunnels SW into the hill, or a small incline shaft, inclined down to the SW, keeping under the hard vein rock capping, which seems to pitch down in that direction. No directions can be given now regarding this.

These proposed graduated steps in exploration are designed to keep the risk down to a minimum. The work should be stopped at any stage where things look discouraging. At present I like the set-up well enough to recommend that this series of steps be started.

E.W.

Edward Wisser


VICINITY of RICHMOND RANCH,
SE of SAN JOSE, CAL.
Scale: 1" = 1 mi.
LEGEND
Tertiary Rhyolite:
Knoxville sediments:
Franciscan serpentine:
" Chert:
Vein rock:
Fault:
Contour interval 100'
121° 45'
37° 15'
Evergreen
San Felipe Road
Wash, soil etc.
Knoxville Sediments
Hillsdale
Coyote
River
Serpentine
Edenvale
Silver Creek
Chert
Slide rock
Serpentine
HAYWARD
"Bowl"
FAULT
Dry Creek
Approximate position, vein rock SE of Cattle trough
Rhyolite
N
400
500
600
700
800
1000
1074
1275

August 7th, 1941.

Mr.B.E.Richmond,
64 West Santa Clara Street,
San Jose, Calif.

Dear Mr.Richmond:

Enclosed please find a brief report on the quicksilver possibilities at the Richmond Randh, as well as statement,together with bill from Hanks for the assays.

I do not consider the lack of quicksilver in these samples of much significance. If No.1,from the old tunnel,had run I should not have gotten excited,because I do not like that area. Nos.2 and 3 are somewhat disappointing perhaps. No 2 is from the dump of the old cut,where panning failed to show any colors. This stuff you remember was supposed to run 40 lbs. No.3 is from your area,the one you visited after my trip.

However, if there is an ore body around, the vein rock capping above it should show better than a blank in places:leakage through the cap. This is why I suggest thorough prospecting as a first step; if we had found anything more than the specks we did find, I should have recommended step 2, the bulldozer trenching, as step 1. As it is, I am sincerely in favor of the prospecting outlined,and of the succeeding steps when justified. This tentative schedule may of course have to be altered at any stage,depending on results of the preceding stage. If you feel like starting in, let me know and I shall try to get you a suitable man for the prospecting, one if possible who can handle all succeeding steps if need be. I have a good man in mind in case a mine for which I do consulting work folds up;he is there at present.

In case you go ahead with this work, I should be very glad to cooperate by checking the results of each stage of exploration from time to time,and laying out succeeding stages. At an early period in this work, a detailed topographic and geologic map would be highly desirable; this I could make in a few days;at present it is not indicated. The initial prospecting should come first.

Please keep the following under your hat: Mr. Guyer is a fine fellow, and as far as I know O.K.;but he is an inveterate optimist,and has I have heard run more than one enterprise into the ground through taking long chances. Please don't misunderstand me: what I say is based on good authority, and I give you the tip solely for your possible protection. I've no axe to grind.

Sincerely,

Edward Wisser

September 11th, 1941.

Mr. B.E.Richmond,
Richmond-Chase Co.,
San Jose, Calif.

Dear Mr. Richmond:

This will acknowledge receipt of check for $82.32 in full payment for professional services in connection with examination of Richmond Ranch. Thanks very much.

I was much interested in your prospecting activities, and add a few additional hints that might help. In general, the hard quicksilver rock such as you have in the area I liked best carries very little cinnabar anywhere. But if there is an ore shoot below it, it should show occasional specks or crystals or tiny seams. Often from the iron oxide it is difficult to detect these even with a hand lens; but in the California Coast Range type of deposit, careful panning nearly always brings out the cinnabar if it is present. (Not true for Nevada). I would therefore pan the more promising looking portions of your outcrop. The usual practice is not to crush the hard rock,but to examine it for nuggets and pan the dirt that comes with the harder rock. In your case, however, where the object is to see whether there is any cinnabar at all, I feel tempted, as an old and incorrigible gold miner,to suggest you crush a few samples pretty fine and pan the crushed pulp.Schuette, my associate, would probably frown at this.

I think you are more likely to find signs of cinnabar along the softer slope just below the hard vein rock outcrop than elsewhere. The old-timers had the same notion,as witness their old works. The idea is to dig through the soil just under the east edge of the hard outcrop,down to bedrock. But since this east edge is hundreds of feet long,such digging is hardly worthwhile except for areas in the hard outcrop itself that show definite,even though minor, cinnabar. If no such areas can be found,prospecting your outcrop might still be worthwhile for a major mining company; but I would not favor it for a private individual.

If I can be of any further help just let me know.

With best regards,

Sincerely,

Edward Wisser

August 7th, 1941.

Mr. B.E.Richmond,
Richmond-Chase Co.,
64 West Santa Clara Street,
San Jose, Calif.

To Edward Wisser, Dr.

To professional services,examination of Richmond Ranch, 1 day in field @ $50.00	$50.00
Investigation, San Francisco and Berkeley, and writing report, 1 office day @ $25.00	25.00
Mileage, 126 mi.@ $0.05	6.30
White print, phone call, postage etc	1.02
	$82.32